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PAPER TRADE JOURNAL

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY

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FIFTY-SECOND YEAR

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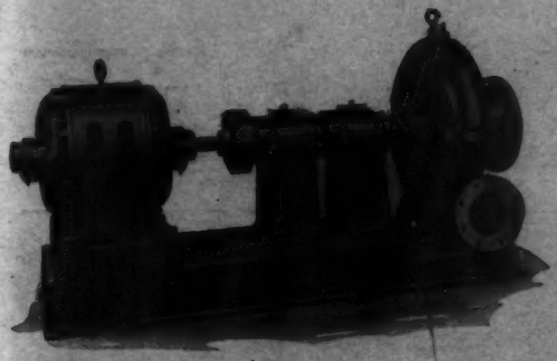

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FIFTY-SECOND YEAR
Published Every Thursday by the
LOCKWOOD TRADE JOURNAL CO., INC.
LESLIE R PALMER, PRESIDENT — GEO. S. MACDONALD, VICE-PRESIDENT & TREAS. — F. K. HOPPIE, SECRETARY
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ESTABLISHED IN 1872

PAPER TRADE JOURNAL

Vol. LXXVIII No. 11 NEW YORK AND CHICAGO Thursday, March 13, 1924

REFUSES TO APPROVE PAPER SIMPLIFICATIONS

At Meeting of Simplification Committee Chairmen Announcement is Made that B. W. Scribner, Chief of The Paper Laboratory of the Bureau of Standards, Complains that Specifications of Government Printing Have Been Disregarded—Committee Decides to Call Meeting of Paper Producers, Jobbers and Consumers to be Held in New York City on April 8.

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., March 12, 1924.—At a meeting of chairmen of sub-committees of the Paper Simplification Committee called by the Simplified Practice Division of the Department of Commerce on Monday it was decided to call a meeting of the paper producers, jobbers and consumers in New York City on April 8. The move was approved by Hugh P. Baker, secretary of the American Paper and Pulp Association who was consulted by telephone.

Will Not Approve Paper Simplification

Considerable consternation was thrown into the conference when it was stated that B. W. Scribner, chief of the paper laboratory of the Bureau of Standards would not approve the paper simplifications worked out on the ground that the specifications of the Government Printing Office had not been taken into account, that the Public Printer had not been represented at the conferences and that the attitude of the Government Printing Office should have been taken into account.

The attitude taken by Mr. Scribner is of considerable interest owing to the fact that the simplification program was first worked out with the help of the paper laboratory of the Bureau of Standards before Mr. Scribner became connected with it as chief. As the result of the attitude taken by Mr. Scribner, William A. Durgin, chief of the Simplified Practice Division was asked to ascertain from Secretary of Commerce Hoover just where the committee stands.

Monday's conference was called to order by Mr. Durgin who asked the committee "what you want us folks to do? and how far do you want to go on the simplification program?"

He pointed out that the program which is now before the Division limits the activities to eight sizes. It was generally agreed that it would be much better to have these eight sizes adopted than to try and have a larger number adopted at the present time.

Claim Lack of Interest

There was a general discussion from all of those present relative to the simplification program. It seemed to be generally thought among those present that the paper manufacturers, themselves, had not taken the amount of interest in the program that they should and that was necessary, that while the American Paper and Pulp Association at the Chicago convention had endorsed the program, that is as far as the manufacturers had gone.

As the direct result of the conference in addition to the calling of the meeting in New York on April 8, which will be addressed by Mr. Durgin as chief of the Simplified Practice Division, it was agreed by the chairmen of the sub committees attending the conference that they would see to it that necessary blanks were sent to mills, jobbers and paper consumers, for their endorsement of the program adopted up to this time.

One of the chaimen said that in his talks with the paper manufacturers they seemed to feel that it was up to the consumer to say what he wanted and they would supply it. That is if the simplified program was acceptable to the consumer they would put it into effect. Another one of the spokesmen said that the paper trade think that the program is fine but they won't raise their hand to help it along. He suggested that the consumers should first be "sold" on the proposition and then the mill will have to follow.

Paper Trade Lagging Behind

The discussion brought out the fact that the paper trade is much behind the other industries in standardization work. The suggestion was also made during the course of the discussion that the "key" men in the various lines of paper manufacture should be seen by the committee chairmen and that if they were "sold" on the plan the others would follow.

As the meeting finally adjourned it was suggested that answers should be collected as soon as possible and tabulated so that they could be presented at the forthcoming convention of the American Paper and Pulp Association in New York.

Among those attending the conference in addition to those already mentioned were: F. A. Curtis, American Writing Paper Company; R. S. Hatch, chairman of Technical Standardization Committee; G. A. Heintzemann, chairman Simplification of Paper Sizes for General Commercial Printing; F. W. Hume, chairman Sizes of Paper for Books and Magazines; R. F. McElwain, chairman Committee on Classification; J. Matthews, Jr., chief Paper Division, Department of Commerce; Maurice Saunders, chairman committee on Sizes of Paper for Bond, Writing and Ledger Forms; C. J. West, chairman Committee on Definitions; C. C. Whinery, chairman committee on Sizes of Paper for Catalogs and Directories, and B. W. Scribner, chief Paper Section, Bureau of Standards.

Government Printing Test

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., March 12, 1924.—It is understood that a preliminary printing test was recently carried out at the Government Printing Office on glue-bound papers as compared with those bound with casein. No printing difficulties of any kind were encountered, the glue-bound papers giving as good results as the casein bound ones. The test indicated that no modification of ink is necessary for printing glue bound papers, and that the adhesive quality of the glue is satisfactory. It is planned to make more extensive tests after the coating process has been further improved.

MONTREAL HEARS OF OFFER FOR THE SAGUENAY INTERESTS

Price Bros. & Co. Said to Have Made $21,000,000 Overture —Amount Would Cover Debts But Leave Nothing for Shareholders—Temporary Receivers for Chicoutimi Pulp Co.—Becker Wood Pulp Co. Issues Statement—Emundston Likely to Have New Paper Mill—Annual Report of Fraser Companies Shows Good Profits—Grand Falls Development Plan Feasible Say Experts.

[FROM OUR REGULAR CORRESPONDENT.]

MONTREAL, Que., March 11, 1924.—There is considerable talk about the possibility of Price Bros. & Co. taking over the Saguenay Pulp and Power Company, which has figured very much in the news lately owing to Sir Frederick Becker's connections with it. Early last week it was reported that Price Brothers & Co. had offered $21,000,000 for the Saguenay Pulp interests, including Bay Sulphite which amount it was said would cover the debts but would leave nothing for the shareholders.

At the adjourned annual meeting of the shareholders last week, however, President Senator F. L. Beique announced that, although during the past three months he has been approached by various interests, no direct offer has been made, and no offer has yet been received from the Price Brothers' interests. The financial report for the year ended December 31, 1923, was read, showing a deficit for the year amounting to $183,828, as compared with a deficit of $419,881 in 1922, and bank loans on hypothecation of inventories reduced from $2,135,000 to $567,000. The same board of directors was re-elected for the ensuing year, with the exception of C. G. Heward, who was elected to replace Hall Caine, who had been Sir Frederick Becker's nominee.

The profit and loss account showed gross earnings, after deducting selling and administrative expenses of $1,502,522 as compared with $1,477,390 in 1922. After deducting bond interest $740,554; other interest and exchange $175,917; and claims and bad debts reserve, $200,000; there remained net profit, before depreciation, amounting to $386,051. Depreciation reserves on plant, equipment, timber limits and pulpwood inventory, and proportion of discount written off, collateral bonds, aggregated $569,880; leaving a deficit of $183,828 which was carried to the deficit account bringing the latter up to $636,769. In 1922 the deficit was $419,881.

The balance sheet as at December 31, 1923, shows several changes from the tentative report issued as at October 31, 1923. Property account less appreciation is shown at $16,686,554 as against $14,997,406. Current assets total $1,415,969 as against $1,019,923. Claims against Becker & Company, and other companies, are shown at $1,882,285 as against $1,341,812. Deficit account stands at $636,769 as against $97,027. Current liabilities at $1,748,297 compare with $1,058,478. In addition to the above the statement also shows contingent liabilities. As far as the Saguenay Pulp and Power Company is concerned it has no debts to the public and is quite free from trouble.

It may be added that Sir William Price, who is now in England, is expected to be in Canada with Lord Rothermere, brother of the late Lord Northcliffe, on March 15.

Chicoutimi Pulp Co. Temporary Receivers

A petition in bankruptcy against the Chicoutimi Pulp Company was presented last week in Montreal and interim receivers were immediately appointed by the court. The receivers who took immediate control of the operations of the company are Arthur Ross, of P. S. Ross and Sons, D. B. Brodie, of Price & Co., Montreal, and Eugene Trudel, of Larue Trudel and Picher, liquidators, Quebec. The petition is returnable within a fortnight and means according to information that re-organization of the company will be started shortly.

In the Legislative Assembly, Hon. Honore Mercier, Minister of Lands and Forests, informed Dr. Faucher, of Quebec Centre, that the Chicoutimi Pulp has paid the Government for stumpage duties a sum of $396,023 since July 1st, 1919, and that there is a balance of $86,329 still due, in regard to which there is now legal difficulty, and which should be settled after adjustment.

Becker Wood Pulp Co. Issues Statement

The Becker Wood Pulp Company of America, Inc., has sent a letter to the Montreal press containing the following:

"Our attention has been drawn to the following paragraph in an article in the press:

"'While here, in August last, Sir Frederick organized, in New York, the Becker Woodpulp Company, without financial backing and had them acting as selling agents of the Chicoutimi Pulp Company, without knowledge or authorization of the Board. Becker Woodpulp Company defaulted in their payments to us and we had to cancel the Agency and now stand to lose with them.'

"Regarding the statement that the Becker, Woodpulp Company was without financial backing, this is quite without foundation. From its inception, the Company has had ample funds and support, and since the suspension of Becker & Co., Limited, London, it has had backing of the strongest character.

"During our connection with Chicoutimi Pulp Company, we have, in every case, met our engagements promptly, even in cases where there were complaints due to deficiency in quality of tests. We have fulfilled every contract made on our own account or that of Becker & Co., Limited, London, and we have experienced considerable inconvenience through the reckless and unwarranted instructions, issued by telegram and letter to our customers in the U. S. A., to withhold payment to us."

Rumors of New Paper Mill at Edmundston

Much interest has been created by widespread reports that a large modern paper mill is to be added to the industries near Edmundston, N. B., which seems to be based upon the reported sale of about two acres of land near the Maine end of the International Bridge across the St. John River, between Edmundston and Maine, and the securing of options of considerable additional land in the same vicinity. This leads to the belief that the location of the projected big paper manufacturing plant is to be at Madawaska, Maine, and according to reports the Fraser Company, Limited, whose head offices are now located at Edmundston, and the Brown Corporation, whose parent organization is in the United Brown Corporation have entered into an agreement to take over States, but who now control several large pulp industries in Canada, are interested in the transaction. Some reports have it that the the output of the Fraser Companies pulp mill and, will erect a mill at Madawaska, to manufacture the pulp into paper; another report is that the proposition involves an alliance of the Fraser and Brown interests and the erection of a jointly-owned mill, which would take the output of the present paper mill at Edmundston.

Grand Falls Power

At the opening of the Legislature of New Brunswick, it was announced that the experts' report on investigation into the feasibility of development of the Grand Falls on the St. John River was favorable and it was stated that the Government's decision thereon will be placed before the House at an early date. Rights and leases at the Grand Falls were owned by the International Paper Company interests until declared voided by the Provincial Government a year ago because of failure to carry out provisions of renewals calling for certain headway to be made with actual development work before a date which was named. The Grand Falls location on the St. John River is not far from the International Boundary and it has been contended that development of Hydro power there means that flowage over American territory must result; on the other hand it has been contended that sufficient storage facilities can be provided in lakes located in the province of Quebec for the initial development at least, which is expected to be about 50,000 hp.

PHILADELPHIA CHEERED BY MARCH INCREASE IN SALES

Fine Paper Division Especially Participates in Improved Trade Conditions Over February—Paper House of Pennsylvania Opens Rewinder Department—M. O. Raiguel's Paper Stock Business Installed in New Home—Daniel I. Murphy Co., Inc., Establishes Waste Paper Department —National Waterproofing Co. Adds Several New Items to Its List—Jottings of General Trade Interest.

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., March 11, 1923:—Enough of the business experiences of March has now been written on the books in the accounting room to justify the statement that the first third of the new month shows a very marked increase in sales, particularly in the fine paper division over February and a contrast with the business of the corresponding period of last year even more marked. The Charles Beck Company, The Paper House of Pennsylvania, Riegel & Co., and the Garrett-Buchanan Company, among the fine paper houses and S. S. Garrett, S. Walter & Co., Inc., and the J. L. N. Smythe Company among the coarse paper distributors are a few of the more striking illustrations of firms which spontaneously reported decided awakening of buying activities virtually beginning coincidently with the present month. Demand has increased all along the line but in no instance in radical manner. Though the printing trade within the city limits still is complaining over a great dullness in that industry its purchases during March have bulked up from 10 to 15 per cent greater than they were a fortnight ago.

Increased Demand for Coarse Papers

In the coarse paper market orders are increasing in volume as well as in number. The trade was much interested in the last statement of the Federal Reserve Bank for the Philadelphia District which showed that during 1923 importations of foreign made Kraft papers were 20 times as large as they were in 1920, and that news print importations were two or three times as large. Local dealers believe that this tremendous increase by no means is being continued this year because much inferior goods have been dumped on the market and because of a greater hesitancy among distributors in handling stuff from over seas owing to the increased vigilance of Federal authorities in enforcing the anti-dumping law. Prices in Krafts and the better grades of wrappings are tending to harden but no parallel advances were reported during the month.

In the paper stock market conditions remain little changed from what they were during February but that little has been for the better. Mills are listless in inquiries and even more so in orders, but because of the limited amounts of stock coming into the warehouses of the jobbers quotations continued steady and unchanged.

Paper House Opens Rewinder Department

A departure and development in its business will be made this week by the Paper House of Pennsylvania. Lease has been taken of a floor in the terminal warehouse at Front and Brown streets, and in this there is to be opened a rewinding and slitting department. During the week there was installed a machine capable of handling a 74-inch wide roll and this is to be supplemented as this branch of the business is developed. The machine will be capable of cutting and rewinding any size from 74 inch down to one inch, and can be used either for the news print roll in the importation of which the firm extensively is engaged or in the handling of Jumbo rolls of Kraft paper.

M. O. Raiguel in New Home

Yesterday workmen began razing the property at 305 Florist street owned by M. O. Raiguel and occupied by him for the paper stock business since 1912. The firm is now operating in its warehouse at 150 N. Front street. In addition to the packing of paper stocks the firm is developing a business in the sales of new writing, book, news print, and other fine papers. The new building is much wider than the old, facilitating receipt packing and shipment of stock and its equipment of two Minnich baling machines, each with a 1,500 lb. per bale capacity enables the baling of 40 bales every day. The third and fourth floors of the new location are given over to the sorting of stock which falls by gravity into great bins on the second floor and then is fed into the baling presses on the first floor. These together with the hoists are all actuated by electricity. There has just been added to the Raiguel organization William J. McGrath, formerly connected with the U. S. Internal Revenue Department who becomes the financial manager. Charles G. Ashbridge continues as general manager.

Murphy Co. Opens Waste Paper Department

A waste paper department has been established in the business of Daniel I. Murphy Company, Inc. The new department will be under the management of John L. Shulman who for many years was connected with the Onondaga Trading Company of New York who will supervise the buying and selling of waste paper stock in large quantities, featuring carload shipments to mills or dealers. The Murphy Company, recently incorporated under the laws of Pennsylvania, has been established for over 30 years and has been devoted exclusively to the dealing in rag stock.

New Products of National Waterproofing Co.

The National Waterproofing Company has developed in its Camden factory two new waterproof papers which it now includes among its standard stock. There is being made a specially prepared Tympan paper used by printing houses in the press rooms for "make ready." It is made in all sizes and is supplied in rolls or sheets, special sizes being made to order. The other product is a special board used for stencil work and especially adapted in use on stencil machines and which is marketed under the brand of "Stencilrite." Stock sizes in this specialty are from 20 x 24 to 40 x 48, while other sizes are made to order.

News Items of Trade Interest

The Garrett-Buchanan Company is now calling attention to its stocking of "The Big Five." For many years it has featured its Monogram white enamel paper, and has established it in large sales. Now there has been added to this line Monogram Tinted Enamel, Monogram Super, Monogram Eggshell, and Monogram Smooth Machine Finish.

T. G. Gamble, widely known in trade circles because of his paper truckage business, has been made Grand Monarch of the Koran Grotto, Mystic Shriners.

The York Paper Manufacturing Company has been organized with a capital stock of $135,000, and will be devoted to the manufacture of building papers chiefly, with the principal stockholders, Charles, Carl and Jacob Lefean.

The Paper House of Pennsylvania has added to its stock the Avalanche Bond made by the Gilbert Paper Company, a medium priced paper selling at 18 cents in case lots. It will be stocked in white only but colored papers will be made on special mill runs.

Hooper Paper and Twine Co. Expands

The Hooper Paper and Twine Company, Inc., located at 145 South Front street, has recently leased more space in the building which it has occupied for the past three years. New lines are continually being added to the coarse paper business established by the President, George K. Hooper, under whose management, the business has shown a substantial growth.

HEALTHIER CONDITION NOW RULES IN CHICAGO MARKET

Firm Tone Has Been Steadily Developing and Purchasing Is Now on Level Basis—Falling Off in Demand for Waste Stocks Is Noted—Bradner Smith Takes on West Virginia Pulp and Paper Co. Lines—Cosmopolitan Paper Box Co. to Get Under Way on April 1—Superintendents Making Plans for Annual Meeting—National Container Association to Meet in New York City.

[FROM OUR REGULAR CORRESPONDENT.]

CHICAGO, Ill., March 8, 1924.—The one outstanding feature of the Chicago paper market at present is its firmness which is particularly prevalent in the upper grades of book, bonds and writings. It has not come about suddenly but steadily over a period of from six to eight weeks. Coming in this way, it has brought a healthier condition to the trade by abolishing wild speculative buying and keeping purchasing on a level basis. Most of the bond, writing and book mills, it is said, report big business for several weeks ahead. There is a general feeling among the trade that an active spring business will be realized.

Paper bags are going fairly strong. The demand has picked up rapidly within the last two months and is on the upgrade now. The ten per cent increase in prices put into effect late in January had no slackening effect on purchases from the consuming trade. This information is given by a Chicago representative of one of the largest bag producers in the country, who stated that all last year bags were being sold at a figure which netted very little if any profit and the boost in prices will make it possible to realize a slight margin on sales. A splendid summer business is expected.

Buying of Waste Stocks Slump Off

A much lighter demand for paper stock has created a weaker market during the past week. Quotations on almost every item in lower grade dropped off considerably. The higher grades, such as shavings and white envelope cuttings still hold firm at the previous week's levels. On mixed papers the market stopped at $16 per ton but orders at that low mark were decidedly scarce. Board mills curtailed buying perceptibly, due, no doubt, to the fact that some weakness was experienced in that division and also that they had accumulated stocks of waste and were desirous of cleaning them up.

Bradner Smith Adds West Virginia Line

Bradner Smith & Co., of 333 S. Desplaines street, will act as distributors for the entire line of the West Virginia Pulp and Paper Company, which produces the Westvaco mill brand papers. Bradner Smith & Co. will market them through The Mill Price List and warehouse a tonnage of all brands, colors, weights and sizes adequate to meet the broadest demand from this territory. The West Virginia Pulp and Paper Company will continue its Chicago store and sales branch as heretofore.

New Paper Box Company Incorporated

The Cosmopolitan Paper Box Company, Inc., has just been incorporated with a capital of $7,500 to operate at 730 West Randolph street. This firm will manufacture and deal in paper boxes such as those used by the candy, shoe and similar industries. The business will get under way about April 1 by which time machinery will have been installed and sufficient stock purchased from mills. The incorporators are: M. A. Johnson, T. L. Rosenberg and J. S. Raban.

Holds Next Meeting in New York

New York City will be the mecca for all members of the National Container Association on March 25 and 26, the time of its next spring meeting, which will take place at the Biltmore Hotel, according to an announcement issued by H. S. Adler, secretary of the organization. A program of unusual interest and importance is scheduled.

Regular sessions will commence at 10 a. m., on Tuesday, March 25, with a recess for luncheon at 1:00 p. m., and an afternoon session following the luncheon. On Wednesday, there will be a single session adjourned at about 1:00 p. m. A feature of the meeting, aside from the important subjects which are on the program for discussion, will be a "get-together" dinner to take place on Tuesday evening, at the Castle Cave Restaurant. Messrs. Samuel Samuels, of the American Corrugated Paper Products Corporation, New York, and C. A. Agar, of the Agar Manufacturing Corporation, Brooklyn, N. Y., constitute the special committee on arrangements for the dinner.

Chairman F. M. Durbin, Sefton Manufacturing Corporation, Chicago, has arranged to call a special meeting of the Statistical Committee in New York City on Monday, March 24, the day before the regular meeting.

Several most vital standardization questions are now pending and the action of the meeting on these is awaited with interest. Chairman Clarence J. Schoo, of the General Fibre Box Company, Springfield, Mass., will submit the report for this committee.

Sales promotion activities are being carried forward in line with the determination to extend the use of corrugated and solid fibre boxes in all proper fields. Chairman J. P. Brunt, Mid-West Box Company, will report for the Sales Promotion Committee.

Preparations for Association Handbook

The Handbook for association members is expected off the press in the near future. In order to take care of individual members' requirements, the booklet is being issued in three forms, as follows: With illustrations and data as to Corrugated Products; with illustrations and data as to Solid Fibre Products; with illustrations and data as to both types.

Due to an arrangement made specifically for this purpose, the booklets may be imprinted with the individual member's advertising. Orders on hand indicate that about 40,000 copies will be printed. These are being furnished to members at actual cost, and by reason of the large quantity ordered, the requirements of individual members, in smaller lots, may be filled at a very small cost.

Part 2 of the book will be standard in all issues. It will contain much useful information.

Activities of the Paper Trade

J. T. Backus, of the J. W. Butler Paper Company, Chicago, spent several days visiting the mills in the Miami Valley last week.

Several officials of the Champion Coated Paper Company were off in various parts of the country during the past week. Clarke Marion, chief chemist, was in Chicago. Logan G. Thomson, secretary-treasurer, left with Mrs. Thomson, to spend a few weeks in Bermuda. Alexander Thomson, vice-president, was also in Chicago for a few days. Bob Butterworth, manager of the Chicago office took a business trip to Minneapolis.

J. B. Jones, purchasing agents for the Western Newspaper Union, Omaha, Nebr., spent several days in Chicago last week and also at their mill in Ladysmith, Wis.

Fraser Companies' Profits

The seventh annual report of Fraser Companies, Limited, of Edmundston, N. B., shows that during the year ending December 31, 1923, trading profits amounted to $1,364,467, as compared with $804,614 in the previous year. After making all deductions, the amount added to profit and loss surplus was $477,894, as compared with a deficit of $259,383 in 1922, which is an actual improvement of $737,277 over the previous year. One of the items charged in 1922 and not in 1923, was $270,000 as depreciation of inventories which partly explains the large discrepancies. The profit and loss surplus now stands at $1,001,653.

TORONTO MILLS HAD GOOD BUSINESS FOR PAST YEAR

Annual Reports Without Exception Depict Most Favorable Conditions—Kilgour Brothers Start Operations at New Factory—Dominion Tar and Paper Co. Leases Factory Site—Rossing Plants Report Rush of Business—New Pulp Mill to Be Erected at Sioux Lookout—Captain W. R. Maxwell to Have Charge of Forest Patrol—Ratcliff Paper Co. Celebrates Silver Anniversary.

[FROM OUR REGULAR CORRESPONDENT.]

TORONTO, Ontario, March 10, 1924.—Business is moving along moderately with the pulp and paper men although by no means rushing. Book and writing mills are fairly well employed and during the past year enjoyed a good season, according to the annual reports which are being presented. There is still talk of a merger between the Howard Smith Paper Mills and the Provincial Paper Mills. It is reported that a cash offer has been made to the Provincial for its assets and that a somewhat different proposition has been made to the Howard Smith Paper Mills. Respecting the Provincial it is learned that an actual cash deposit has been made with a trust company covering the proposal which, it is understood, is around $120 a share. The annual meeting of the Provincial Co. will be held this week and a definite statement will likely be laid before the shareholders.

One feature of the market during the past few days is the number of American representatives of bond paper mills who have been calling upon the trade and many samples have also been received. It is understood that Canadian mills are able to meet the competition and that very few orders have been placed outside of Canadian plants.

The report of the Commission on Pulpwood, which will be presented at Ottawa in a few weeks, is awaited with considerable interest and the taking of evidence has now been completed. In the federal parliament during the past week, A. J. Lewis, Progressive member for Swift Current, Sask., stated that he considered an embargo on the export of pulpwood might be necessary in the interest of Canada. He added that he presented these views as his own and not as those of his party. The forest resources of the country were being rapidly depleted and it had to be remembered that they should be held not alone for the use of the present generation but for others.

New Paper Bag Factory Starts

The new paper bag factory of Kilgour Brothers have started operations at Windsor Mills, Que., and this branch of the business, which was formerly operated in Toronto on Wellington street, has been removed to Windsor Mills. This will give Kilgour Brothers more room for their paper box plant which has grown considerably of late. The machinery of the Specialty Paper Bag Company, which industry is controlled by Kilgour Brothers, has been removed from King street west to the head office of the firm at 21 Wellington street west, Toronto.

Dominion Tar and Paper Co.

The Dominion Tar and Paper Company has secured a lease of five acres from the Toronto Harbor Board for twenty-one years and will erect a factory to cost two hundred thousand dollars upon the site. British capital is behind the enterprise, which is headed by the Earl of Dunmore and Sir Harold Bolton, who have been spending some time in Canada. It is announced that the Toronto factory is only one of a chain which will stretch across Canada and similar plants will be established in Montreal, Winnipeg and Vancouver. The essential products made by the concern are those, which are manufactured from or made with the aid of coal tar and a supply adequate to meet the needs of the company in each city where a plant will be located, is an absolute necessity.

Rossing Plants Are Kept Busy

The Thompson and Heyland Lumber Company, Toronto, who are large dealers in pulpwood, have established a rossing plant at Landrienne, 157 miles east of Cochrane, Ont., and are rossing about fifty cords of pulpwood daily. The company have also made arrangements for rossing wood at other points and are supplying the Abitibi Power and Paper Co., Iroquois Falls, with twenty thousand cords of pulwood. During the past two months the Thompson and Heyland Company have shipped some twenty-five thousand cords of pulpwood to points in southern Ontario and to Pennsylvania. The demand for rough, unpeeled wood at the present time is fair.

New Pulp Mill for Sioux Lookout

G. E. Farlinger, of the Farlinger Company, Sioux Lookout, Ont., says that his company will erect a pulp mill at that place in the near future, and eventually will add a paper mill to turn out the finished product. Engineers will be soon set at work to develop the water power on the English river. The company is capitalized at two million, five hundred thousand dollars and will contract to furnish the town with light and power. The Farlinger company is taking out three hundred thousand ties this season besides a large quantity of logs.

Will Have Charge of Forest Patrol

Captain W. R. Maxwell will have charge this season of the forest fire protection flying squadron in Northern Ontario under the direction of the Department of Lands and Forests. Captain Maxwell will establish depots in the north for the thirteen aeroplanes, which have recently been purchased by the Ontario government. Some fifty-five thousand dollars have already been spent on the new service.

Observing Silver Anniversary

The Ratcliff Paper Company, Limited, Toronto, is celebrating its twenty-fifth anniversary. The business was founded in 1899 by Fred L. Ratcliff and S. J. Douglas, both of whom had been with Taylor Bros., owners of the Dan Valley Paper Mills. A few years ago Mr. Douglas withdrew and the name was changed to the Ratcliff Paper Company. All kinds of coarse papers are handled as well as allied lines, and the firm is today one of the best known jobbing houses in Canada. Thomas Barker, sales manager, has been with the house ever since its inception and recently celebrated his golden wedding, receiving valuable gifts from the firm and the employees.

Celebrates His Golden Wedding

W. J. Sheppard, of Coldwater, Ont., one of the best known lumbermen in Ontario and former president of the Spanish River Pulp Company, before it was taken over by the present company, this week celebrated his golden wedding. Both Mr. Sheppard and his wife are in excellent health. Hon. Howard Ferguson, Premier of the Province, Chief Justice Sir William Mulock and other notables attended the event. Mr. Sheppard still holds large timber interests and is a director of the Royal Bank of Canada.

Notes and Jottings of the Industry

Ralph Bell, of Halifax, dealer in pulpwood and timber limits, spent a few days in Toronto last week calling upon the trade.

I. H. Weldon and S. F. Duncan of the Provincial Paper Mills, Toronto, spent the past week in New York on business.

W. H. Sheriff, of the Hodge-Sheriff Paper Company, Toronto, was in Montreal and Three Rivers last week.

L. B. Shaffery, superintendent of the Ogdensburg Pulpwood Company, Ogdensburg, N. Y., and Harry J. James, of the Stevens Paper Mills, New York, were among the visitors to Toronto recently.

(Continued on page 42)

PRACTICAL QUESTIONS AND ANSWERS

FOR MILL MEN

A Department for the Solution of the Troubles, Large and Small, That Are Encountered by the Workers in the Mills in the Course of Their Duties in Making Paper and Pulp — All Mill Men Are Invited to Send in Both Questions and Answers—A Free Exchange of Ideas Is Desired—By Active Co-operation This Department Can Be Made a General Clearing House for Information in Regard to Practical Paper Making.

Trouble with Fuzz

QUESTION No. 2563. I am having more or less trouble, while running on a white patent coated news board, with fuzz rising on the white surface of the sheet after calendaring. I have tried numerous ways to overcome this but have not been able to do so entirely. I have tried more water boxes on the calendars, different amounts of size, have added starch to the stock, but cannot get the results desired. I have not been able to get a sheet that did not have some fuzz on the surface which is a great objection to the printers. I would like very much to find out, through your questions and answers department, how I may overcome this difficulty.

ANSWER No. 2563. Not having the furnish you use for your patent coated board, it is rather hard to tell you just exactly why you get the fuzz after the board has gone through the calendars. Of course there are several reasons why the board might have fuzz after it has gone through the calendars. One reason why patent coated board will fuzz is the fact that too many water boxes may be used on the calendars. The board is of such a nature that, when it reaches the calendars in a very dry condition, the minute the water reaches the board the fibers will absorb the water which will cause them to swell up and at the same time raise up. For the fundamental reason you have the fuzz you must go back to the beater room and your furnish. If your furnish is right you will not have any trouble with the fuzz after the board has gone through the calendars. A good furnish in the right proportion will eliminate your troubles. A furnish composed of bleached sulphite, unbleached sulphite and soda pulp with the correct amounts of each is a good furnish. Then, add the correct amount of size and alum and starch if you want to. If you will experiment in your beating room and get your furnish right, you will be able to end your troubles at the dry end of your machine.

What Causes Sheet of Paper to Split

QUESTION No. 2564. I would like to ask through your valuable Questions and Answers why a sheet of paper run on a three mould machine has a tendency to split from fifteen to twenty-five points or heavier.

ANSWER No. 2564. Your trouble of having the paper split when it is run from fifteen to twenty-five points or heavier is caused primarily in the beater room. In the first place one of the reasons why your paper splits is because the stock is not all uniform on all of the moulds. If your stock is a little too close on your number one mould it does not give the air a chance to get out when the sheet is picked up at the number two mould. Your stock has got to be open enough to let the air get out from between the sheets and in the same way when the sheet gets to the numbr three mould. If your stock is all right the trouble might be caused by the felt being too fine. If your felt is too fine and not open enough you will have the same condition. In other words the air will not get out and of course if the air stays in between the sheets they are bound to split.

Try first, to get your stock uniform and not too close. After you have done this and you are convinced that the stock is all right and you are still having the trouble of the sheet splitting, look at your felts. Try getting a little coarser felt; or more open felt. If you get both of these conditions corrected you will no doubt eliminate the trouble of the sheet splitting.

Trouble With Cockles

QUESTION No. 2565. We have for some time had considerable trouble with cockles forming in our sheet. These cockles, or wrinkles, do not show up until the sheet is half way through the driers, then in going through the calendars they cut. We are now forced to throw away some ten to twelve inches on the side of our sheet to eliminate the cockles, which, of course, is quite expensive. We are wondering whether you have had any correspondence in the past with any of the mills which had similar trouble, and could give us any information as to what might be causing them, and what to do to eliminate them. We shall appreciate your advising us anything which you know regarding cockles. We have tried everything which we can think of on our machine to eliminate them, but so far we have been unable to do so.

ANSWER No. 2565. Your trouble mostly, I should judge, is from the fact that you are trying to dry your paper too quickly. You are carrying too much pressure in your driers and consequently you have your driers altogether too hot. From the fact that the cockles do not appear until the sheet is half way over the driers shows conclusively that the driers are too hot when the paper starts over the machine. When the driers are too hot and you are at the same time running the machine too fast, there are certain conditions which arise. A pocket forms between the sheet of paper and the driers which is filled with steam and this does not have a chance to escape. When this pocket forms with the steam your sheet will cockle every time. Try slowing down your machine and at the same time cut down on the steam pressure so that your driers are not so hot and I think you will eliminate your trouble of cockles. There is no need of trying to get a large production and then throwing part of it back into the beater room. You might better slow down and get all of your paper all right and not have your driers too hot. When you get your driers heated and the speed right and do not have any cockles you can gradually put more heat on and more speed, up to a certain point without cockles. In doing that you can easily find the best place to get production and at the same time not have any cockles.

Plans for Boston Paper Trade Banquet

[FROM OUR REGULAR CORRESPONDENT.]

BOSTON, Mass., March 10, 1924.—The thirty-eighth annual meeting and banquet of the Boston Paper Trade Association will be held at the Algonquin Club, Thursday evening, March 20. The speakers for the occasion are Hon. Channing H. Cox, Governor of Massachusetts and Professor Charles J. Bullock of Harvard University.

ELECTRICITY AND PAPER MAKING*

By R. H. Rogers, General Electric Co.

What does the modern paper mill do under the spur of electricity? It virtually unrolls a 12 foot log into a half mile sheet of paper. Some of the log is chipped and chemically digested to pulp while the major part is pulped in a grindstone. The two parts are sluiced onto the running screen of a paper machine where a unit part is felted in 3 seconds, pressed in 2 seconds, dried by steam heat in 40 seconds, calendered in almost no time—and there is your finished paper.

Multiply this by four and you have the new electric paper mill at Three Rivers, Quebec where they are turning out "news" 12 feet wide at 45 miles an hour with electric power from a water fall 25 miles away. Day and night they are rolling out of that mill, stock for 16-page papers 8,000 per minute under the urge of 25,000 hp. of hydro-electrical energy.

This Three Rivers Mill of the International Paper Company has among its major items seven 2,400 hp. synchronous grinder motors. They each drive two grindstones that shred 4-foot logs to a creamy pulp ready to go into paper after a simple process of screening out the oversize shreds.

Water is the vehicle which transports the fibers through all processes, it is repeatedly added and extracted. Dilution is carried to 200 parts to 1 at times so that the pumping duty reaches the striking total of 2,000 tons of water per ton of paper made. About 70 centrifugal pumps are driven in this mill by direct connected motors aggregating over 4,000 hp.

The four giant paper machines, 300 feet long, are assemblages of units, each with micrometric relations with its neighbors. Each section is driven by a direct current motor adjustably tied in as to speed with all the other motors on the machine. A 500 kw. direct current turbine generator runs each machine with steam that is on its way to the paper driers and 88 per cent of the heat content of the steam goes on to the driers—the turbines acting as reducing valves with the incidental extraction of power.

Contains 400 Motors

All told, the mill contains 400 motors practically all direct connected to their loads. Power is brought in at 60,000 volts and stepped down to 2,300 volts for the grinder motors and 550 volts for the induction motors.

There are many electrified paper mills in this country and Canada, some having only electrified departments and others having all mechanical operations carried out by electric power. The paper machines that are driven by General Electric motors alone are turning out 21 acres of paper per minute.

Even the burning of fuel to generate steam is giving way to electricity for there are two gigantic paper mills now under construction which will each use 90,000 hp. of electrical energy, two-thirds of which will be used for making steam. This great quantity of steam, over 7 tons of steam per ton of paper produced is to be used for pulp cooking, paper drying and general heating. There will be no fuel problem in these two giant industrial plants. A modern paper mill invests well toward $2,000,000 for electrical equipment alone.

Some Comparisons

By way of contrast, consider the old Rittenhouse Mill near Philadelphia, the only one in America from 1690 to 1710. Perhaps the extension of man power by the use of machinery will be the fairest comparison. In this old mill, rags were pulped in stone mortars by trip hammers and the paper was formed on hand screens about two feet square. The output was 60 pounds per day per man. The Three Rivers Mill turns out 1,500 pounds per day per man. This ratio of 25 to 1 indicates the extent to which man has brought machinery to his aid in the art of paper making.

It is of interest to note that in 1879 there were about 800 paper mills just as there are now, but they only used one tenth the present horse power and produced a still smaller percentage in value and tonnage. The present mill investment is well over a billion dollars and the annual product in the United States alone is worth 700 million dollars—where does it go?

In the first place we use twice the paper of our nearest rival, England. We use 150 pounds per person every year. A New York daily uses 875 tons for a Sunday edition or the total output of the Three Rivers Mill for two and a half days. This consumes the spruce from 175 acres of forest and the growth of fifty years. However, wood used for paper is only 4 per cent of the total cut and only one-nineteenth of that consumed by forest fires.

Paper runs all the way from the fairy-like "glassine" for covering candy boxes to heavy tough roofing felt for covering big factories. It is staple in three hundred forms and special in three thousand. Weights, finishes and colors run the varieties up to figures that match its thousands of uses.

What Paper Is

Whatever may be its texture, color or other characteristics, paper is basically cellulose $C_6H_{10}O_5$. Cellulose can be obtained from nearly every green thing that grows or from worn out articles made from vegetable products such as linen or cotton rags, rope, old paper and the like. What is best to use, is determined by the quantity of cellulose that can be obtained per ton of raw material and the overall cost up to the paper machine.

Bamboo, cotton stalks, weeds, marsh grass, straws of all kinds and many other raw materials are either being used or experimented with, but soft wood preferably spruce, now supplies the major requirements. Spruce can be secured in quantities usually up stream from the mill, it delivers its fiber in compact handy packages that turn out 1,100 pounds of pure cellulose chemical pulp per ton of wood or nearly ton for ton of cellulose with ligneous and resinous components in the form of ground wood pulp.

Paper made from groundwood pulp alone may be likened to the paper in the nests of hornets, the original woodpulp grinders and paper makers. Man, however, did not copy their art until about sixty years ago and then he improved upon it by adding a percentage of chemically prepared long fiber cellulose. For extra tough paper, chemical pulp is used without the addition of groundwood.

Today glassine, newspaper, book paper, bond paper, wrapping and wall papers and in fact 95 per cent of all the paper used is made from wood alone. Paper money is made from rags as are certain fine bond, ledger and book papers.

In the old days rags or other raw material was cooked and mashed to pulp under water, then the paper maker laboriously dipped a sort of window screen into the vat, shook out the surplus water, peeled off the felted sheet and dried it over a pole in a draft of warm air. You can do the same today with the kitchen meat grinder, a wad of rags or old paper and a fine window screen.

Process Not Greatly Changed

Essentially the process is the same in the largest and fastest mill today.

Part of the sawed and barked logs are run through a chipper which reduces them to small chips. After screening they go into huge digesters where 8 hours treatment with live steam and a chemical removes all but the true cellulose fiber. This is washed and screened before being combined with groundwood pulp. This cheaper ingredient is made by shredding the logs on great grind-

(*Continued on page* 40)

*Broadcast from W. G. Y., February 11, 1924.

EFFICIENT FOREST UTILIZATION—A MAJOR FACTOR IN AN EFFECTIVE NATIONAL FOREST POLICY*

By Carlile P. Winslow, Director, Forest Products Laboratory, Forest Service, U. S. Department of Agriculture.

This paper is in the nature of a summation or digest of the most significant factors showing the importance and necessity of efficient utilization of our forest resources in any National Forest policy which is to be effective. It is hoped that it may receive the consideration of the members of the Society of American Foresters, and that they will freely give expression to their thoughts and offer constructive criticism and suggestions to the end that this phase of the forest problem may ultimately receive proper recognition in any national policy finally created and adopted.

For his assistance in the preparation of this paper, acknowledgment is made to Mr. Rolf Thelen, of the staff of the Forest Products Laboratory.

Object of a National Forest Policy

This nation has been fortunate in its wealth of timber resources. They originally covered one-half of the entire area of the United States. They have contributed in an important degree to the growth and prosperity of the country. Upon them have been built industrial, financial, and commercial activities of enormous magnitude and ramifications which in capital invested, value of products, and labor employed collectively rank in the foreground of our national developments. The public at large has become accustomed to advantages and conveniences resulting from the daily use of all forms of forest products to an extent far in excess of that of any other nation.

Because of the rapid depletion of our forest resources, these interwoven activities and interests are facing a relatively early radical curtailment and readjustment. This is generally recognized by all who have given even passing thought to the situation. It is because of it that public attention has been awakened to the importance of the creation of a National Forest Policy.

What can be done to insure to the public a perpetuation of the supply of all products from the forest which are necessary to their convenience and welfare? If curtailment must eventually come, to what extent and in what direction must preparation be made for it? What can be done to protect our waning timber stands and to increase them by more growth? What balance can be struck between a diminished supply of forest resources and increased efficiency in the production and utilization of forest products?

These are the questions which underlie the development of a sound forest policy; they form the skeleton upon which the body of the policy must be created.

Minimum Utilization Requirements a Determining Factor

With our timber, as with our other national resources, we have become accustomed to an extravagant utilization. Many factors have contributed to the existent methods and practices upon which such utilization is based—many arguments might be presented for their justification in the past and for the desirability of their continuation. Interesting as these might be, they are aside from the crux of the situation. It is no longer practically possible to provide a permanent forest supply which will long permit a continuation on our present basis.

It is, of course, of importance to recognize that we have nationally already depleted one-half of the original forest stands of the country, that our per capita consumption is greater than that of any other country, and that we are at present draining our supply at a rate four to five times faster than we are replacing it by growth. The significance of such facts is apparent, but it is equally apparent that they do not in themselves determine that there is any national necessity for a continued forest drain of such magnitude. The essential point for determination is the minimum annual forest cut which, by the most practically efficient methods, will meet our necessary requirements. Only by attention to this critical point can it be wisely determined how far we should nationally attempt to provide a forest supply to the end that the consuming public may utilize it with a greater or less degree of extravagance or of efficiency.

Intensive Forest Growth and Protection Will Not Meet Future Requirements

The importance of the utilization phase of the problem becomes strikingly evident by consideration of the following significant tendencies of the forest supply situation:[1]

The total available area of forest lands amounts to approximately 470 million acres. This represents one-fourth of the total area of the United States. It includes all forms of land considered suitable for the growing of trees for utility purposes.

Of this area, two-sixths represents our remaining virgin forests, three-sixths is classed as second growth, and one-sixth as practically barren but suitable for trees.

On the area occupied by the virgin forests, losses due to insects, fire, and other hazards offset any increase due to annual growth; on the one-sixth area of barren land there is obviously no annual growth. This leaves but three-sixths, or one-half, of our present total forest land upon which any net annual growth or increment in our forest supply is secured; it amounts, for this one-half of our forest area, to an average of 23 cubic feet per acre—for our entire area of forest land to approximately 11½ cubic feet per acre.

Our present total annual cut for all purposes represents a drain from our forests equivalent to an average annual growth of 48 cubic feet per acre for the entire 470 million acres of forest land, and this does not include the present annual loss in the forests of over 2-1/3 billion cubic feet due to decay, fire, insects, etc. It has been estimated that 58 cubic feet per acre is the maximum average which could be secured by highly intensive forestry. Continuation of the present annual cut will, in a period of from 25 to 30 years, exhaust our present standing timber together with the growth increment in that period.

If the total forest cut remain fixed, normal increase in population will result in a decrease in the per capita forest cut of 20 per cent in 25 years, 33-1/3 per cent in 50 years, 50 per cent in 100 years.

The inevitable conclusions from the foregoing are of impressive significance. Even with liberal allowance for inaccuracies in estimates, it appears that our present annual forest drain cannot be maintained from present supplies longer than from 30 to 50 years; to provide a supply to sustain it 100 years hence will require that an average of nine million acres of forest land annually for 50 years be brought to an average growth condition of 48 cubic feet per acre—and this average growth permanently maintained. If such accomplishment can be attained, our per capita forest drain 100 years hence will approximate 50 per cent of the present drain. In the interim, we are facing an inevitable reduction in our total cut of from 50 per cent to 70 per cent—in our per capita cut of from 70 per cent to 80 per cent.

No allowance has been made in the foregoing for losses by forest

*Paper presented at meeting on December 27, 1923, of the Society of American Foresters.

[1] Figures from United States Department of Agriculture Yearbook. Separate No. 886, "Timber, Mine or Crop?" 1923.

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fire. Without effective fire protection, the situation will be even more acute.

Even with liberal allowances for the unavoidable errors in estimates of such magnitude as the foregoing, there can be no avoidance of the conclusion that intensive forests growth and protection, even if applied and practiced to the entire extent practicable, cannot alone meet the situation.

Increased Efficiency in Utilization Imperative

Broad acceptance of the foregoing tendencies leads to the inevitable conclusion that we are faced with but two possibilities. However much we may safeguard our future timber supply by fire protection, however much we may increase it by new growth, however much we may supplement it by importation from other countries,—and the importance of these elements is indisputable—we will still have to use what we take from our forests with a much higher degree of efficiency and we will have to curtail uses and practices to which we have become accustomed. The necessary degree of curtailment is inseparably related to the possible degree of greater efficiency in utilization.

It is obviously of the utmost importance squarely to face the situation and to develop national action to the end that such material as can be provided may be utilized to the highest degree of national advantage.

Conversion Losses

This staggering total is made up of a very great number of small wastes and losses occurring in the various wood-manufacturing and wood-using industries from the time the tree is felled until the finished product has finally reached the end of its usefulness. the loss in manufacture and remanufacture alone is usually estimated to be over nine billion cubic feet per annum, an amount which is greater than that required for our entire lumber production. Carelessness and lack of efficient methods of handling and use, coupled wtih enormous losses due to decay during service make up the balance of the 60 per cent.

The single factor of decay annually destroys an amount of timber in service, equivalent to about one-fourth of our annual total forest drain, which is just about equal to the present rate of forest growth. This amount of material, if sawed into lumber, would be sufficient to build homes for about 12 million people every year.

A Reduction of 40 Per Cent in Forest Drain

It is obviously not possible to eliminate all the present wastes and losses in manufacture and use, even with perfect methods of utilization, but it is just as obvious that a large portion of them are unnecessary and avoidable. A careful analysis of the character and nature of the losses occurring under present methods indicates that 40 per cent of this present drain is of a nature that can ultimately be eliminated. To accomplish this will require the application of the highest forms of utilization to the entire forest cut, and the diversion of every piece of timber to its best use. It will require, also, the best possible protection of the wood during use. It its anticipated that it will take perhaps a hundred years before this ideal can be approached; it will involve the use and application not only of present knowledge but of further knowledge to be developed by effective research and practice.

One Half of the Ultimate Saving Now in Sight

Analysis of present practice and of the state of the art shows that the best present methods, as demonstrated in actual practice, if applied throughout, would bring about a net saving of at least 20 per cent of the present forest drain. This total would of course be made up of a great many small savings, just as the present wastes and losses are made up of a great many small wastes and losses.

Just as decay in service is the largest single loss so is decay prevention the largest single possible saving. The annual loss from the decay of wood in service has been estimated at 25 per cent of the annual cut—a conservative estimate when it is considered that the amount of wood in service and exposed to decay must aggregate at least 25 times the annual cut of this class of material. Present methods of decay prevention can double the life of a large part of this material, and improved methods of construction and protection can prolong the life of much of the rest of it, which cannot well be treated with creosote or other preservative. It seems, therefore, that an estimated saving by decay prevention of slightly less than 6 per cent of the forest drain is reasonable.

Improved woods and mill practice, in the logging and milling of lumber and other forest products, is well recognized as entirely feasible, and much work has been done to determine just how far this can be carried at present. The conclusion drawn from this work is that a combined saving of five and one-half per cent can be accomplished. This includes lower stumps, closer use of tops; more care in felling to avoid breakage; less destructive logging methods; the universal use of thin gauge band saws; care in sawing, edging, and trimming; and similar improvements.

Recent surveys have shown that the loss of material during seasoning and storage is much greater than necessary on the basis of present knowledge, and field experiments have shown that much of this loss can be avoided. It is particularly worthy of note that these losses are not confined to the hardwoods, as might be supposed; the losses in Southern pine alone aggregate over ten million dollars per annum. On the basis of best present commercially practical air seasoning and kiln drying methods, it seems entirely feasible to reduce the seasoning losses an amount equivalent to 3 per cent of the forest drain.

Present manufacturing methods are largely based upon the practice of sawing the logs into boards and then sawing the boards into smaller-sized pieces in accordance with the individual needs. A very great portion of all hardwood lumber and a lesser portion of softwood lumber are finally cut up into comparatively small pieces, which enter into the manufacture of such classes of product as furniture, woodenware and novelties, implements and tools, chairs, case goods, musical instruments, boxes, and crates. These small pieces are classed as "dimension stock" and are usually of high grade material. Analysis of the needs of many wood-using factories has shown that a large part of their needs for wood can be supplied just as well by dimension stock as by lumber. If, therefore, the dimension stock were to be cut at the mill direct from the log or from woods and mill waste, an enormous percentage saving could be made, and the highest utilization secured. This method is already in use to a small, but growing extent. It represents one of the most simple and direct methods of reducing the forest drain which could well be imagined, and it is anticipated that its application will increase rapidly. On the basis of present knowledge, it seems evident that at least 1½ per cent of the entire forest drain could be saved by the general application of dimension stock cutting at the mill.

The losses and remedies cited are typical. The saving to be effected by those enumerated aggregates about 16 per cent of the total forest drain. A further 4 per cent is divided among 20 or more improved methods and practices, distributed throughout all of the forest products industries.

Future Forest Supply Augmented

For any given production, efficiency in utilization means reduction in forest cut. Such reduction of cut becomes at once translated into increased forest supply. This increase is of a form and character of immediate rather than potential value. It is cumulative without additional expense. A saving made today is repeated tomorrow and perpetually thereafter. Improvements in utilization, once established, continue. A board foot saved by improved utilization becomes a board foot saved annually, thus augmenting our waning timber supply.

Inadequate Recognition of Efficient Utilization

While all conversant with the situation admit the importance of

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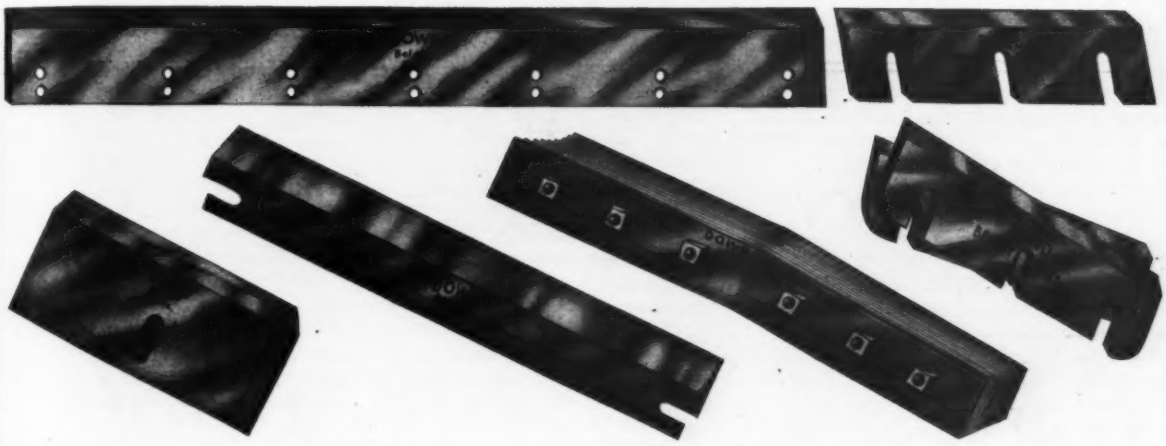

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efficient utilization, yet it is the elements bearing upon the growth of a forest supply to which public and legislative attention is being chiefly directed. Taxation, protection, land acquisition, planting, regulation of cutting on privately owned lands—these are the elements which at present are receiving chief consideration.

Effective provision for the foregoing in a forest policy will necessarily entail enormous expenditures over an extended period. Relief of forest lands from taxation means reduction in state and federal revenues by many millions for many years; adequate fire protection means a permanent increase in state and federal expenditures aggregating 8 million dollars annually—an amount equivalent to 5 per cent interest on 160 million dollars; land acquisition to be effective in the national situation will require an expenditure of at least 100 million dollars within a limited number of years, and a further expenditure of approximately two or three times that amount if the land acquired is to be made productive, and regulation of cutting on privately owned lands will not only necessitate liberal expenditures but will relate to less than 70 per cent of our forests cut unless applicable to the farm woodlot and other small holdings.

Recognition and adequate provision for the foregoing—and their importance is in no way denied—can not but lead to the conclusion that comparable recognition and provision should be made to insure a high degree of efficiency in utilization. If it is nationally wise and necessary to expend vast amounts of public funds to provide a supply of timber, is it not equally important to do all possible to insure its wise and efficient utilization?

If it is sound to relieve the lumberman and other forest land owners from taxation, is it not equally sound to assist comparably the wood-using industries and wood users to a higher degree of efficiency?

If it is sound to expend a million dollars a month to protect timber from fire, is it not equally sound to expend comparably to prevent a wasteful utilization of the timber so protected—to prevent the burning from lack of a better use of 15 per cent or more of much of our so-called mill waste? If every forest fire were prevented in the future, the saving would be only one-tenth that to be achieved through the application of better wood-using practices along the lines already definitely pointed out by research. Stamping out the forest fire is recognized as a tremendous problem and one that may well call for the expenditure of a million dollars a month. Stamping out the bad practices in wood utilization throughout the country and replacing them with efficient methods should also be recognized as a tremendous and important problem whose solution is just as tangible as fire protection but which cannot be effectively coped with if it is regarded as a minor issue in every forestry program.

If it is sound to expend hundreds of millions of dollars to acquire land to insure adequate forest growth, is it not equally sound to expend comparably to reduce the enormous loses due to decay of material in service, which now causes annual replacements requiring one-fourth of our total annual forest cut?

If it is sound to regulate the operations on privately owned timberlands to the end that our future supply may be augmented, is it not equally sound to regulate comparably the use and consumption of this supply and thereby further augment the remaining supply?

Recommendations

Such, then, are the broad aspects of the situation. It demands public attention; it will require national action. Fire protection and new growth stand out as salient features demanding broad, liberal, and effective recognition and treatment. Comparable recognition and treatment of efficiency in utilization are necessary to complete the picture. Allied with it is the possibility of assistng the situation by importation from foreign countres.

A complete, balanced, and effective National Forest policy should include provision for:

1. Adequate research into the properties and methods of utilization of all forms of forest products, not only from this country but from other countries offering importation possibilities. Results of such work not only lead the way to the ultimate reductions possible in the forest drain, but also are a direct and important factor in ultimately bringing the growth of timber to a financially profitable basis, attractive to capital and to the investor.

2. Comprehensive measures for broad and effective dissemination and application of the knowledge and information available. Special attention should be directed to Federal action and co-operation with States, with trade and industrial organizations, with companies, with individuals, and with educational institutions and agencies, in form and scope comparable to that to be provided for fire protection and forest growth stimulations.

Closes South Lee Mill

[FROM OUR REGULAR CORRESPONDENT.]

HOLYOKE, Mass., March 11, 1924.—President S. L. Willson, receiver of the American Writing Paper Company has ordered the South Lee mill, the Hurlbut Paper Mills Division, closed down indefinitely and the business that is handled by these mills transferred to Holyoke. The mills operate eight 700 pound beaters and two Marshall engines, one 66 inch and one 80 inch fourdrinier machine, manufacturing bond, typewriter, playing card and photographic papers. About 50 men will be thrown out of work for an indefinite period though President Willson in his letter to the manager, Walter J. Ingram, expresses the hope that the shutdown will be only temporary. The letter follows:

Walter J. Ingram,
Hurlbut Paper Mfg. Co.,
South Lee, Mass.

Dear Sir:—As you know the Hurlbut Paper Company Division has been operating intermittently during the past few years with results that are alike unsatisfactory to the Company and to its employees.

While conditions show some improvement, it has been decided to transfer to the Holyoke mills such lines as have been previously made at the South Lee mill until there is a prospect of assured continuous operation in order that some of the non-productive expense, in that mill, as well as in the Holyoke mills, can be eliminated.

We realize what the operation of the mill means to the employees and merchants of South Lee and therefore hope the closing of the mill will be a temporary prudential measure. Details of this closing will be handled between you and Mr. Yoerg.

Yours very truly,
SIDNEY L. WILLSON,
Receiver of American Writing Paper Co.

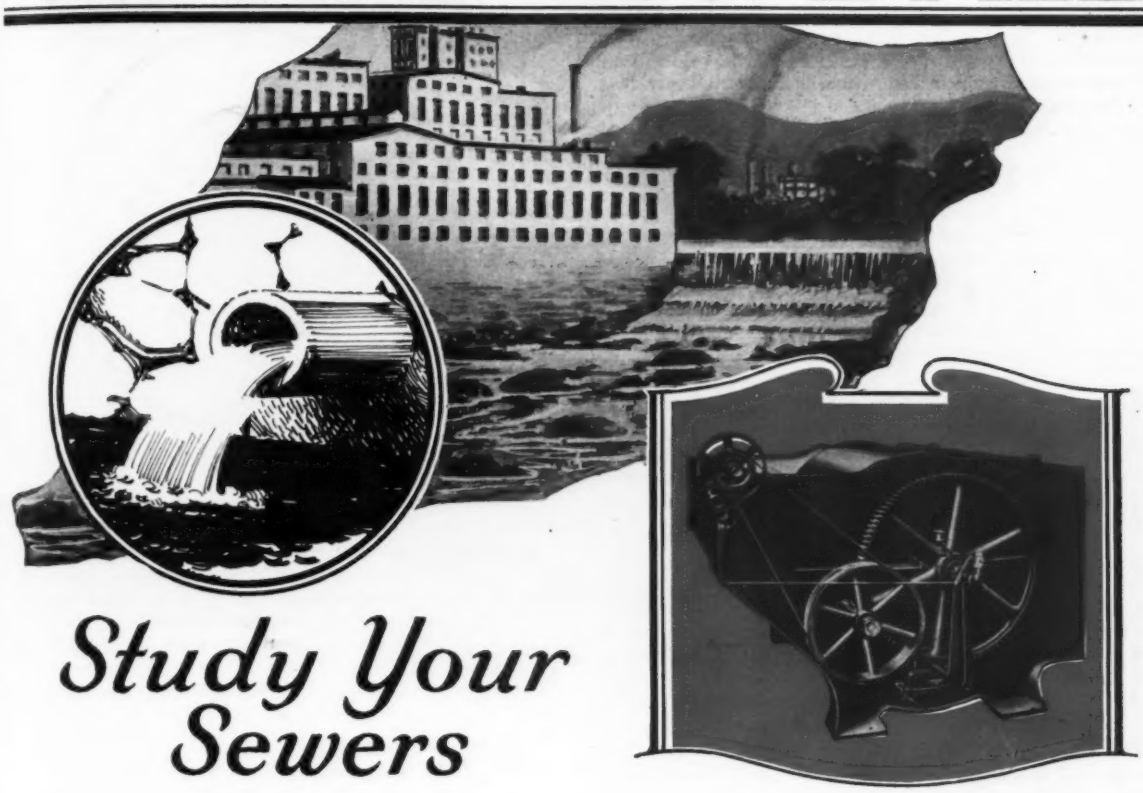
Allied Mills Add Equipment

[FROM OUR REGULAR CORRESPONDENT.]

KALAMAZOO, Mich., March 10, 1924.—Considerable new mechanical equipment has been recently installed by the Allied Paper Mills in the King division in this city and in the Bardeen division in Otsego. The most important single item was in the nature of improvements to the King coating mill. The nine machines were dismantled and entirely overhauled and, by the installation of new power equipment, made to operate at much greater efficiency, both in the quality and quantity of product. At the same time a new floor was laid in this department.

Paper machine No. 4 has been down, allowing the installation of a settling tank for the economical handling of the white water. Paper machine No. 2 is being equipped with a Candler and Taylor prosser type variable speed engine, of 250 horse power, while a constant speed engine of the same build is being installed in the Bardeen division. These two power units will effect a considerable saving in operative expenses, also increase production.

The BIRD SAVE-ALL



Study Your Sewers

DON'T depend upon book figures to tell you the efficiency of your stock handling system. "Large" cords of wood often make book figures show a low percentage of stock used per pound of paper made, whereas they may really hide a heavy fibre loss in your mill effluent.

Study your sewers. Measure the fibre loss from hour to hour. Check the stock handling system for leaks.

Install enough Bird Save-Alls to handle all waste water. Bird Save-Alls recover practically all of the desirable fibres in the white water and return them for immediate use. In practically all cases a Bird Save-All pays for itself in less than a year.

If you haven't a Bird Save-All catalog write for one at once.

6203

BIRD MACHINE COMPANY
SOUTH WALPOLE, MASSACHUSETTS

Western Representative
T. H. Savery, Jr., 1718 Republic Bldg.
Chicago, Ill.

Canadian Builders of Bird Machinery
Canadian Ingersoll-Rand Co., Ltd.
266 St. James Street
Montreal, Canada

Obituary

Fremont Wayne Spicer

Fremont Wayne Spicer, well known to the paper trade, died last week at his home in Long Island. For fifteen years he had been an officer and director of the company which publishes *The Fourth Estate*. Prior to his connection with that publication he was engaged in the construction of a pulp mill in Labrador. Years ago he was London representative of the International Paper Company. The deceased was 72 years old and is survived by his wife, two daughters and a son. Death was due to bronchial pneumonia.

George Pease

SOUTH HADLEY FALLS, Mass., March 11, 1924.—George Pease, 82, one of the few surviving veterans of the Holyoke paper industry died last week at his home, 1 Lamb street. For 50 years he had been employed by the Crocker Paper Company and its successor, the Crocker-McElwain Company. He officially retired about five years ago. He had also assisted on the perfection of a number of valuable improvements in paper mill machinery.

Mrs. Julius H. Appleton

[FROM OUR REGULAR CORRESPONDENT.]

SPRINGFIELD, Mass., March 11, 1924.—Mrs. Julius H. Appleton, widow of Julius H. Appleton, prominent Holyoke paper manufacturer, is dead here. Mr. Appleton who died in 1904 was president of the Riverside Paper Company.

New Temperature Controller

The C. J. Tagliabue Manufacturing Company announces the addition of an Electric Contact Type Temperature Controller to its line of indicating, recording and controlling instruments.

This Electric Contact Controller consists essentially of a dial-indicating thermometer, the pointer of which is actuated by the usual mercury, vapor-tension, or gas-filled thermostatic system, depending on the desired range and other specifications. The bulb stem is inserted in the oven, furnace, tank or other apparatus where the temperature is to be controlled and is connected by a capillary tube to the case which can be mounted at any convenient location. As the temperature at the bulb increases or decreases, the thermostatic spring uncoils or recoils, thus moving pointer across the scale. The exact temperature existing at the bulb is thus indicated at the case and the responsiveness and closeness of the control may be determined.

The temperature is controlled by the following arrangement. On each side of the indicating pointer is located an arm. These arms are mounted on the axis of the pointer and have mounted on them auxiliary contactor arms. By adjusting the left-hand arm to point to the minimum temperature, and the right-hand arm to point to the maximum temperature, control is established between these two points in the following manner: When the indicating pointer reaches the minimum temperature, its contact block makes an electric contact with the left hand-arm closing a circuit through binding posts L and C which operate through a relay to close the circuit of an electric heating coil. The current continues to pass through this heating coil until the indicating pointer reaches the maximum temperature and makes an electric contact, with the right hand-arm closing a circuit through binding posts C and H.

The Controller may also be used for starting and stopping a motor by means of a motor-starter as in the case of an automatic refrigerating unit.

The least difference between minimum and maximum control temperatures is approximately 1/32-inch. It cannot be expressed in degrees of temperature unless the range of the scale is known.

An adjusting screw is provided for simultaneously lowering or raising the minimum and maximum temperatures at which the indicating pointer closes the circuit. This is accomplished by moving the arms together as a unit to the right or left.

The difference between the minimum and maximum temperatures may be changed, by turning the adjustment screw provided within the case. This is accomplished by having the left contact arm move toward or away from the right contact arm. The greatest difference between minimum and maximum control temperatures is approximately ½ of the total range.

TAGLIABUE TEMPERATURE CONTROLLER

Head temperature correction is provided. By means of a bimetallic strip interposed as a link between the spiral spring and the spindle of the indicating pointer, fluctuations in temperature at the case of the instrument are corrected automatically. This compensating device is identical with that used in TAG Recording thermometers.

The case is Japanned-iron with a nickeled-brass door, 8" in diameter.

War Against Paper Bootleggers

The story of how the paper bootleggers are raining the American paper market with improperly classified entries of foreign paper will be told at the American Paper and Pulp Association convention, at the business session, Thursday, April 10, when Dr. Baker will report on the results of the Association's investigations of this subject.

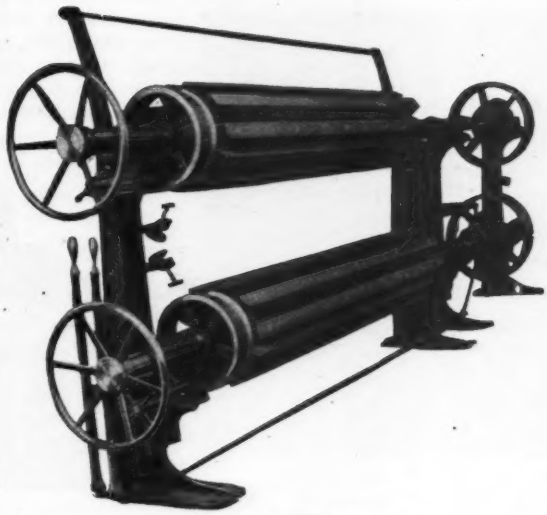
Beginning with the special import conference in November, the Association has been quitely prosecuting its inquiries into the activities of the bootleggers of foreign paper, and some surprising developments have resulted.

A formal protest has been made this week against the admission as printing paper of "Made in Germany" second sheets for typewriter use, letter sized paper, wrapped and sealed in ream packages. The paper paid duty as printing paper, thereby coming in under conditions which makes it impossible for the domestic manufacturers to compete with the German offers. The paper is being sold by the importers at 16 cents a ream, and an interesting sidelight is that the importers' price is so low that it is possible for New York stationers to offer this paper as a "bargain" at 35 cents a ream, and still undersell the domestic manufacturers.

The customs authorities have been given specific evidence of the dumping of Canadian kraft at prices from 1½ to 2 cents below the Canadian home market for the same paper.

The importation of parchmentized paper as wrapping has also been protested by the American Paper and Pulp Association, which some time ago announced its temporary discontinuance of its Information Service to permit Warren B. Bullock, in charge of that department, to devote his time to investigations of customs abuses.

Meeting All Requirements For Safety



No. 82—Beloit Upright Reel

A STANDARD safety-first upright reel made to conform with strictest regulations of state laws as to clearance between drums, which rotate in opposite directions, making it impossible for a man to get drawn in between them. Spools are made either of wood bat construction or of cast iron, as preferred. Drums are made for end and side adjustment. They are equipped with frictions for use when unwinding. Also equipped with friction clutches for starting and stopping. Special attention given to lubrication of bearings, which are self-aligning. Well built throughout for steady service.

Send Your Specifications to Beloit for Satisfaction

Beloit Iron Works **Beloit, Wis., U. S. A.**

New York Trade Jottings

Austin B. Calvin for the past year production manager of the Thames Paper Mills, Purfleet, England, returned to New York recently on the S.S. *America* and is temporarily staying at Fairfield, Conn. Mr. Calvin expects to locate on the Pacific Coast.

* * *

A voluntary petition in bankruptcy has been filed by Karl Becker, a paper salesman of 350 Madison avenue. His liabilities are given as $107,661 and his assets as $2,298. The principal creditor is the Fitchburg Savings Bank of Fitchburg, Mass., $35,000 partly secured.

* * *

The Robert Gair Company has reported for the year 1923, production profits of $3,634,480 and net income of $1,634,341. A net profit of $803,503 is shown. The balance sheet at the close of 1923 showed net current assets of $4,974,760 and net liabilities of $1,032,820, leaving net working capital of $3,941,940.

* * *

According to announcements just received from London, Porritts & Spencer, Ltd., of Bury, England, one of the largest felt manufacturing concerns in the world, have increased their prices approximately 10 per cent on all felts and jackets. This increase was necessitated by the steady increase in the cost of wools.

* * *

Joseph Kramer, formerly president of the Columbia Corrugated Company, is no longer connected with that concern, but has acquired control of the Garment Center Fibre Container Corporation of 205 West 36th street. Albert H. Israel, formerly general manager of the Columbia Corrugated Company, now holds a similar position with the Garment Center Fibre Container Corporation.

* * *

James Rosenberg, formerly president of the American Woodpulp Corporation, has now become associated with M. Gottesman & Co., Inc., 18 East 41st street. Mr. Rosenberg thereby joins forces with one of the leading wood pulp houses, Gottesman & Co. having been established in 1886 since which time they have developed an extensive business with American and Canadian paper and pulp manufacturers. M. Gottesman & Co., Inc., also have their own offices at 13 Stureplan, Stockholm, Sweden, for the control of their European business which is considerable.

Henry A. Wise to Speak on Import Situation

Import problems will feature the forenoon program of the Salesmen's Association convention on Tuesday, April 8, of the annual Paper Week, while a dinner and smoker with addresses in a lighter vein will take the place of the dinner-dance held the last few years by the paper salesmen of the country. Plans are already well under way for the Salesmen's meeting, and Henry A. Wise has been invited by President J. L. Fearing to speak on the import situation at the forenoon business session of the Association. No other subjects, except matters relating to the year's work will be discussed at the forenoon session, and adjournment will be taken before luncheon until the evening affair.

Some nationally known humorist will be one of the speakers at the evening meeting, and Edward A. Guest was invited, but declined owing to a previous engagement in the west. The speaker will be some man, however, with a message of equal interest to the salesmen.

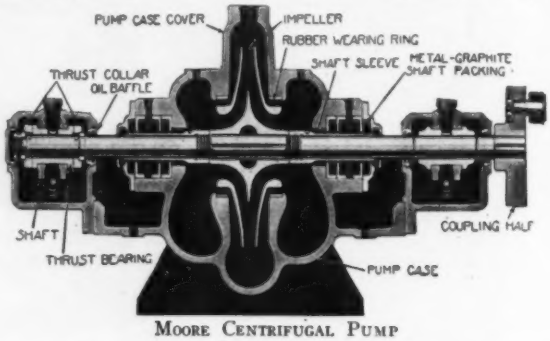
F. N. Countiss, chairman of the convention committee, has already secured some unusual entertainment features for the smoker which will follow the dinner, and the entire affair will be of the most informal type.

More Centrifugal Pumps

The new Moore Centrifugal Pump is creating favorable comment from designing and operating engineers. It embodies all the points of excellence heretofore found in successful pump design, and overcomes two troublesome features with which the operating engineer especially has to contend.

The two outstanding features on the pump are the use of an improved rubber sealing ring on the impeller between the suction and discharge chambers, and the use of a metal graphite packing ring in the packing glands, instead of the ordinary flax packing.

The average user of a centrifugal pump is usually in search of high efficiency. The shop test on a pump is run under ideal conditions—with the packing gland nuts loosened—so that the flax packing in the stuffing box will not create a "drag" on the shaft. After the pump is placed in operation, any workman in the plant



MOORE CENTRIFUGAL PUMP

may pack the stuffing box as tight as possible and squeeze the packing together until there is no leakage. This exerts a powerful pressure between the flax packing and the shaft and consequently lowers the efficiency of the pump. Sufficient tightening of the packing will often "stall" the prime mover.

The Moore metal graphite packing rings rest lightly upon the revolving shaft. There is no binding effect to retard rotation. The new metal graphite packing ring is in no way effected by hot or cold water and once it is properly fitted, leakage is reduced to a minimum. The life of this packing is practically unlimited when the shaft runs without eccentricity. It means that the shop test efficiency of the pump will always be maintained in service. The efficiency cannot vary, or be dependent upon the whims of a plant workman.

Moore pumps are horizontally split, perfectly balanced, use brass protected chrome nickel steel shafts, and are built to limit gauges in a shop equipped for, and accustomed to, precision work. They are built single and multistage, for motor, turbine, or belt drive.

Listened to Income Tax Address

[FROM OUR REGULAR CORRESPONDENT.]

KALAMAZOO, Mich., March 10, 1924.—"Special Relief Sections of the Income Tax Law" was the subject of an address delivered this evening at a dinner session of the Kalamazoo Valley Local Division of the Cost Association of the Paper Industry. The speaker was George D. Bailey, of Ernst and Ernst, manager of the Kalamazoo office of that accounting concern.

For sometime officers of the Cost Association have been making a study and analysis of the tax situation with respect to the taxes paid by the individual members in proportion to their incomes and invested capital. Numerous knotty problems have been encountered, one being the proper application of special relief sections of the income tax law. Along that line, it is pointed out that the time limit for filing any claims expires March 15.

Mr. Bailey has made a study of these provisions and spoke from an authoritative viewpoint. The session was held at the Park-American hotel, dinner being served at 6:30 P. M.

Famous Products Series No. 15

Valley Iron Works Company Equipment *is used in making* Ford Motor Cars

One of the steps necessary in the manufacturing of the linings used in the inside of Ford Cars requires that the substance be thoroughly beaten. For this process Niagara and Valley Holland Beaters are used.

Learn More About Valley Beaters

We will be glad to give you full information regarding Valley Holland Beaters, used by the Ford Motor Car Company and many other manufacturers of nationally famous products. Write a letter today.

Valley Iron Works Company

Plant:
Appleton, Wisconsin.

New York Office
350 Madison Ave.

SEE OUR DISPLAY IN BOOTH 87, PAPER INDUSTRIES EXPOSITION, APRIL 7-12th

Recent Incorporations

INTERNATIONAL PAPER MAKERS' REALTY CORPORATION, Albany, New York. Capital $20,000. Incorporators M. H. Parker, F. P. Barry, M. J. Burns. Attorney, M. Hillquit, 19 West 44th street.

S. DENNER COMPANY, Manhattan, New York, rags. Capital $5,000. Incorporators, S. and G. Denner, H. Galitzer. Attorney, J. H. Rosansky, 220 Broadway, New York.

SANITARY PAPER SUPPLIES, Manhattan, New York. Capital $10,000. Incorporators R. E. Tinsley, H. J. Krinsky, H. Lostfogel. Attorney, I. E. Schlesinger, 299 Broadway, New York.

W. E. HALL MANUFACTURING COMPANY, Kansas City, Missouri. Capital $5,000. To manufacture and sell at wholesale and retail paper boxes, office equipment, etc.; Incorporators, O. E. Mace and W. F. Hall, of Kansas City.

THE HEARN PAPER COMPANY, Youngstown, Ohio. Capital $250,000. Incorporators, F. E. Hearn, G. E. Osborn, W. C. Whitten, Sophia C. Beach and W. C. McKain.

REGAL CARD AND PAPER COMPANY, cut cards, Newark, Ohio. Capital $50,000. Incorporator, Jacob I. Kaplan.

DUK BAK PAPER COMPANY of Everett, Washington. Capital $80,000. Incorporators, Shelton, J. H. Griffin, B. W. Groom and H. M. White.

PIEDMONT PAPER BOX COMPANY, Charlotte, North Carolina. Manufacturing and selling paper boxes. Authorized capital $50,000 with $6,400 subscribed by R. E. Ballenger and A. S. Menzies of Hickory, and C. W. Ballenger of Tryon.

DURAFORM COMPANY, INC., New Haven, Connecticut. To manufacture paper goods. Authorized capital $10,000. To begin with $10,000. Incorporators, Harrison A. Selfridge, Matilda Kipp and Malcolm P. Nichols, all of New Haven.

ELECTRICITY AND PAPER MAKING

(*Continued from page 29*)

stones under a deluge of water. This product is also screened to remove coarse fiber bundles or slivers.

Where the product of either process exceeds the demand of the paper machines the pulp can for storage be converted into dry laps that look like folded yellow-grey blankets.

Two classes of pulp are mixed and reduced to 1 part of pulp in 200 parts of water.

This mixture is continuously poured on a long wide endless belt of fine wire mesh that may be running as fast as 1,200 feet per minute. The water falls through being finally helped along by vacuum and pressure until the felted fibers are peeled off in a continuous web at the far end of the belt.

The web now runs through giant wringers called presses then over and under a great number of huge polished steam heated rolls that drive out the surplus moisture. Next comes the calender which irons the sheet between many highly polished steel rolls under great pressure. This finishes the paper making process proper as there only remains the trimming into widths for commercial use and the rewinding for shipment.

Today an acre of green forest is made into 5 tons or 18 acres of paper by 70 man-hours of labor, 35 tons of steam and 7,000 kw. hours of electrical energy. That amount of paper lasts this, the greatest paper using and paper producing nation in the world, just 40 seconds.

James W. Sewall Reports Business Good

[FROM OUR REGULAR CORRESPONDENT.]

OLD TOWN, Me., March 10, 1924.—James W. Sewall, the Forest Engineer of Old Town, Maine and Washington, D. C., reports that business is extremely good with him for this time of year. He has crews out in Maine, New Brunswick, Vermont, New York and Newfoundland, with over 800,000 acres of land ahead now to cruise and map.

Custom Appraisers Not Negligent

BLOOMFIELD, N. J., March 10, 1924.

EDITOR, THE PAPER TRADE JOURNAL:—

In the issue of your Journal of March 6, there appeared an announcement which, unwittingly no doubt, reflects scant credit on capable, conscientious officers in the Customs Service. I refer to the notice of the assignment by the American Paper and Pulp Association of Mr. Bullock to "secure the evidence necessary to check the abuses of the customs laws."

This announcement might be interpreted to imply that the Appraisers and Examiners were inefficient or negligent. From several years' experience in importing paper, I can assure you that at this Port at least, such a reflection would be most unwarranted. The Chief Examiner in charge of paper knows his subject, knows the law and I am informed that, in a large percentage of cases, his decisions have been upheld by the Board of General Appraisers.

In this connection let us state, that the principal difficulty in properly appraising paper imports lies in the loose phraseology of the Customs Act, that invites the abuses of which the Domestic Manufacturers rightfully complain. Such abuses are as much deplored by and as serious to other importers as to our own mills.

Yours very truly,

THOMAS L. HARROCKS.

Closer Co-operation by Woodlands Section

How to achieve closer co-operation between the Woodlands Section of the American Paper and Pulp Association, and the United States Pulp Producers Association, both of which have O. M. Porter, Assistant Secretary of the American Paper and Pulp Association as their Secretary, will be one of the questions discussed at the meeting of both organizations during Paper Week, beginning April 7.

Both the pulp mills and the foresters of the paper industry have many common problems, and it has been felt by many that a closer coordination of their work might be achieved through their common Secretary, particularly as to pulp wood problems and statistics.

The pulp producers have established operating efficiency reports, as a check on their individual mill operations, but problems of the basic raw material are so interlocked that there is considerable sentiment for a still closer official connection between the two groups. The form which this cooperation will take will be decided by the two organizations during convention week. The Woodlands Section convention on Wednesday, however, will take up many other problems of interest in the problems of forest management, to give the mills an assured supply of the raw material they need for the continued operation of their mills. Features of this will be papers by representatives of the United States Forest Service on Pulpwood Decay and forest organizations for fire control.

Tidal Power Plan Making Progress

The proposed development of tidal hydro-electric power of the Province of New Brunswick has again become a matter of prominent discussion in the east. According to the report from the headquarters of the Marine Division, Canadian Manufacturers' Association, the development would appear to be approaching a stage where progress can be recorded. The proposed development is at the junction of the Petitcodiac and Menramcook Rivers. Federal authorities at Ottawa have been approached and have stated that the Dominion Water Power Branch is not only willing but anxious to co-operate in any way possible in continuing the investigation and bringing it to fruition providing it proves economically feasible. Leading hydro engineers throughout Canada were declaring themselves in favor of proposal which, if successfully developed, would mean approximately 2,000 hp. The estimated cost is about $16,000,000. An influential Maritime committee is behind the movement and from present appearances intend to ascertain if the scheme is practicable.

Wood and Chemistry

Years ago experiments were begun, looking to the use of Southern woods for pulp manufacturing.

Today there are many mills operating in the South, making pulp out of pine by the sulphate method.

Chemistry is still at work. A high grade magazine and book paper is now being made by combinations of various Southern wood fibres.

One mill announces a successful treatment of Southern pine by the sulphite method.

The South invites the serious consideration of the best talent in America's pulp and paper industry.

Rapidly growing timber, year round logging, cheap labor and plentiful cheap power mean economical production and long profit.

Information will be gladly furnished.

Development Department,
Seaboard Air Line Railway,
Oglethorpe Building,
Savannah, Ga.

Chas. A. McKeand,
General Industrial Agent

Clement S. Ucker,
Director of Development

THE SEABOARD—*Through the Heart of the South*

SHIPPING-ROLLS OF PAPERBOARD

By James A. Cameron

Not only is the tonnage of paperboard in the form of rolls as compared to sheets increasing, but the sizes of rolls specified by the customer is still another proposition for the producers of board to wrestle with. Where a comparatively few different sizes of rolls were formerly called for, it was a simple matter to rig up for producing them, but now the customer's demands range all the way from ordinary shipping size rolls, say, for instance, 40 inch wide and 40 inch diameter, up to rolls which might be 60 inch diameter and only 10 inch wide. There is an equally great variety in the kind of core or diameter of hole in the center of the roll. Some customers want their rolls wound on wood slat cores, other on solid wood cores with a square hole, and still others on iron pipe. Others again specify rolls without cores and a hole possibly 3 inch or 4 inch diameter.

What Is the Mill Man Going to Do?

What is the mill man going to do to get out from under this variety of demands? What he usually does is to accept only such business as he can comfortably handle on the winder he already has, or talk the customer out of his notions as to wanting this or that in the way of excessive diameter or narrow width or freak kinds of cores or no cores at all. It is not always feasible to talk the customer out of the preferences he may have. Usually he will keep prowling around until he finds a mill with modern equipment that can produce the kind of rolls he wants, and leave the salesman flat who is trying to sell him what he does not want.

When it comes to shipping the rolls of board, a new difficulty presents itself where the customer demands rolls of extra large diameter, say, for instance, 60 inch diameter, and also wants them straight and even on the edges, firmly wound and frequently also wants rolls of very narrow width in this large diameter.

Poorly Wound Roll Difficult to Handle

A roll which is poorly formed, that is to say, of mushy density rather than firmly wound, and also irregular as to the edges, is certainly a mean proposition to handle in shipping, and equally mean for the customer to utilize. A roll irregular as to the edges requires not only that it should be wrapped on the outside, but also that a certain amount of padding should be used on the ends to prevent excessive damage in shipping—and this costs time and money.

Modern methods of winding rolls solve these difficulties. Not only do they cover the difficulties of producing the rolls, but also minimize the expense of preparing same for shipment.

A Matter of Simple Arithmetic

It is a matter of arithmetic, and a simple one at that, for the average mill man to figure how much he has already invested in mill equipment, including land, buildings, machinery, etc., to actually make the board; and to figure whether the additional investment of possibly one-half of one per cent of this amount in a thoroughly up-to-date slitting and roll-winding machine, would not be a good proposition; especially as the saving of such a machine in the production of rolls at the minimum of operating cost and broke, combined with the saving in shipping difficulties and expense, would probably save the cost of the machine within half a year. That is easy enough to figure.

But there is another factor in favor of modern Roll-Winding equipment, and that is that the mill having it will gradually come to have the preference of the customer utilizing board in rolls.

Retire From Plant, Theis & Gould Paper Co.

Robert S. Theis and George W. Gould have retired from the Plant, Theis & Gould Paper Company.

Superintendents Preparing for Annual

Huge preparations are under way to make the annual convention of the National Association of Pulp and Paper Mill Superintendents the biggest and best one yet staged. The committees have been appointed and functioning for some time. H. W. Server, of the Miami Paper Company, West Carrollton, Ohio, is chairman of the General Committee, assisted by F. R. Henry, John J. Maloney, B. T. McBain, Homer D. Martindale, Thomas E. Keough, Tom Harvey, Michael Ludwig, Jr., and Henry F. Obermanns.

Dr. F. R. Henry, A. A. Simonds-Dayton Company, Dayton, Ohio, is chairman of the Arrangements Committee, assisted by H. G. Funsett, Al. G. Rolfe, Adam Ritz, William Battles, Benjamin Bishop, Homer H. Latimer, John A. Tully and R. F. Englehart.

On the Reception Committee the following have been appointed: John J. Maloney, Franklin Coated Paper Company; Franklin, Ohio, chairman; Dan Daverin, Canadian Division; B. T. Larabee; Northeast division; F. L. Barstow, Connecticut Valley Division; Michael J. Argy, Northern New York Division; Charles Aull, Miami Valley Division; J. F. Yordy, Miami Valley Division; E. H. Gilman, Michigan Division; Charles E. Raney, Western Board Division, and John Hercher, Northwestern Division.

On the Resolutions Committee are B. T. McBain, Nekoosa-Edwards Paper Company, Port Edwards, Wis., Chairman; S. F. Henry, Canadian Division; B. T. Larabee, Northeastern Division; John J. White, Connecticut Valley Division; H. Stafford, Northern New York Division; L. T. Murphy, Miami Valley Division; E. H. Gilman, Michigan Division; C. E. Nicely, Western Board Division, and L. E. Smith, Northwestern Division.

GOOD BUSINESS FOR TORONTO MILLS

(*Continued from page 27*)

A meeting of the manufacturers of waxed paper was held in Toronto during the past few days when matters of mutual interest were talked over and plans made for the future.

John Berhalter, of the Interlake Tissue Mills, Toronto, and C. W. Price, of the Allen Paper Company, Toronto, who have been on the sick list, are steadily improving.

John Hewitt of Paper Sales, Limited, Toronto, spent the past week in Montreal and other points east on business.

A new Rotary Club has been organized in Port Arthur. A. G. Pounsford, manager of the Port Arthur branch of the Provincial Paper Mills, has been elected vice-president of the club and F. N. Youngman, manager of the Thunder Bay Paper Company, is the secretary.

A conference of the Text Book Committee of the Canadian Pulp and Paper Association and representatives of the Westinghouse Electric Company, Hamilton, was held in Toronto during the past week to check up the descriptive and educative matter, which will soon appear in one of the text books of the industry dealing with the electric drive in paper mills.

Board mills are only about eighty per cent busy at the present time and sales are not as brisk as they should be at this period. Paper box plants still report that orders are not as numerous as usual at this season.

Buys Twinvolute Pump Business

Cincinnati, Ohio, March 12, 1924.—The John H. McGowan Company has purchased the business of the Twinvolute Pump and Manufacturing Company of Newark, N. J. The Centrifugal Pumps and others manufactured by the latter concern will hereafter be produced at McGowan Company plants.

Compared with ALL OTHER methods of couching paper on Fourdrinier Machines the

KENWOOD GUARD BOARD and KENWOOD TAN JACKET COMBINATION IS BEST

That is a strong statement — but the PROOF is strong. Actual running experience indicates that this combination develops the maximum of production with greatest freedom from breaks at lowest couching cost of ANY method. Comparatively inexpensive to install.

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KENWOOD MILLS Ltd.
Arnprior, Ontario, Canada

Editorial

Vol. LXXVIII New York, March 13, 1924 No. 11

HENRY J. BERGER, Editor

COMING EVENTS

American Paper and Pulp Association, Convention and Meeting of Affiliated Associations, Waldorf-Astoria, April 7-11.

National Paper Trade Association, Convention, Waldorf-Astoria, April 8-10.

Technical Association of the Pulp and Paper Industry, Convention, Waldorf-Astoria, April 7-11.

Salesmen's Association of the Paper Industry, Convention, Waldorf-Astoria, April 7-10.

Paper Industries Exposition, Grand Central Palace, April 7-12.

OIL AND PAPER

Some weeks ago the entire country knocked off work to sit on the front porch and watch an interesting display of fireworks at Washington. Reputations soared brilliantly and came down a few bits of burned paper and wood. Senatorial pinwheels of oratory spun and spun. Congressional firecrackers popped. The legislators whom the taxpayers support were too busy charging windmills to attend to the important matter of tax reduction.

With March 15 upon us and the same ridiculous burden upon the shoulders of the country that it had when the nation was prosecuting a great war the paper industry among all of the others is bound to suffer. We shall pay for our beautiful display at Washington by a continued postponement of real prosperity.

Summing up these weeks of name calling and blackguarding what, aside from crowding out the weather as a topic of conversation, has been accomplished? No one has gone to jail in spite of serious charges. No one has even been indicted.

Every marplot, leader of the yokelry and senile gentleman in the country has had a chance to strut his brief moment across the front page of the morning newspapers, but has anyone definitely proved beyond a shadow of a reasonable doubt that there was thievery and corruption in the granting of those oil leases?

It is not the province of THE PAPER TRADE JOURNAL either to defend or condemn Messrs. Sinclair, Doheny, Fall or Daugherty. Our position upon the last named gentleman was expressed some time before oil had come to the fore. What we do wish to point out is that there has been a very lamentable shelving of the vital matter of tax reduction for a discussion which has proved fruitless so far as concrete results are concerned.

The people made it perfectly clear what their wishes were in regard to taxes when Congress convened. As for the oil scandal the whole thing could have been cleared up within a week or ten days so far as Congressional investigation was concerned and turned over to the properly constituted authorities to deal with.

People seem to have forgotten that they have perfectly adequate machinery for dealing with crime. The place for the oil scandal is in the courts where intelligent and impartial judges may view the evidence dispassionately. If the oil leases are crooked they will be revoked and the culprits sent to jail where they belong.

Tax reduction is what the paper industry needs. It should have it. The one thing that talks to a shillyshallying legislator is votes. If every business man in the country would wire his senator and his representative tomorrow demanding that taxes be cut at once we humbly venture the opinion that there would be a terrific scramble to pass the measure within two hours after the the telegrams were received.

HIGH RECORD FOR NEWS PRINT

The year 1923 set a new high record for the consumption of news print paper in the United States, exceeding the year 1920 by about 28 per cent and the year 1922 by about 15 per cent, says the Paper Division of the Department of Commerce in a discussion of the news print industry of the United States. The division's announcement continues:

Although the total net consumption amounted to approximately 2,600,000 tons, mills in the United States produced only 1,506,204 tons. This production was practically all consumed in the United States, our export shipments during the year being only approximately 16,360 tons. To make up the balance we imported 1,108,390 tons from Canada, representing approximately 80 per cent of the total Canadian production, as well as 200,450 tons from the European mills. The imports also establish a new high record, the purchases from each of the foreign countries exceeding any previous year by very substantial margins.

Notwithstanding the great increase in consumption, statistics show that mills within the United States have not attempted to keep pace with the demand. United States production for 1923 was about 1.8 per cent less than that for 1920 and only about 2.55 per cent above that for 1922. On the other hand, however, Canadian production has continued to increase and the total production for the two countries for the year 1923, amounting to 2,748,000 tons, exceeded the previous high record set in 1922 by 218,000 tons, or approximately 9 per cent. The Canadian industry has shown rapid strides within the last few years due to the addition of new equipment, whereas production in the United States has shown only little variation with practically no tendency toward expansion in the way of new equipment.

With this situation ruling in the domestic market there is practically no incentive to increase our overseas trade in news print as every pound of such paper can be sold without difficulty within the United States. Therefore, our foreign trade in this particular commodity has been practically discontinued with the exception of Cuba, which during the year 1923 imported from the United States 10,417 tons. The Cuban market, however, can be looked upon as part of our domestic market. Our trade with other countries in news print was practically negligible.

BUSINESS NOT POLITICS

Resenting the display of partisan politics at Washington, the American Paper and Pulp Association for its annual convention the week of April 7 has adopted this keynote, "Business—not politics." In accordance with this policy there will be no speaker representing any political party on any of the programs of the Association.

Instead, Julius H. Barnes, President of the Chamber of Commerce of the United States, Frederick F. Fish, of the National Industrial Conference Board and Dr. W. Warren Giles of East Orange, N. J., will be the three speakers for the banquet program.

Mr. Barnes will speak on the organized business of the nation, and general business conditions. Mr. Fish on problems of industry, particularly such questions as immigration, labor and the like, while Dr. Giles will close with an optimistic message for the American business man. Dr. Nehemiah Boynton, the Association's long time unofficial chaplain will not be in New York at the time of the convention this year, but Dr. Giles is a speaker whose message will be no less impressive than the remarks of Dr. Boynton have always been.

Last year Senator Borah was one of the speakers, other years other prominent political figures have been the convention orators, but the change this year is to evidence the sentiment of the paper manufacturers at least at the manner in which the country's needed legislation is being sacrificed to the political exigencies of a presidential election year.

Insure Tate Paper Employees

NEW YORK, March, 10, 1924.—More than a thousand employees of the Tate Paper and Color Industries, Inc., an organization with five plants in New York and New Jersey, have joined with their employers in acquiring group life insurance from the Metropolitan Life Insurance Company, according to an announcement today by the latter. Under the agreement, the company will share with the workers in the payment of the premiums.

The insurance provided will be in the form of straight life certificates for $1,000 for each of the 850 men employees and for $500 for each of the women and girls. The only restriction lies in the fact that each employee to be eligible must have completed three months of service with the company. In addition to the straight life certificate there is a health and accident policy providing for the payment of benefits of $10 a week each to stricken workers. The total life insurance involved is $925,000; the total weekly accident and health benefits involved, $10,000.

The Metropolitan Life Insurance Company is offering something more than the mere death claims or accident and health benefits to those workers insured under its group plan. The company's welfare division will place at their disposal its nursing service and will distribute at frequent intervals literature dealing with health and sanitation subjects. In the event of illness, the necessary attention will be given the worker until he is able to return to his place of employment.

In addition to this, the Metropolitan maintains a Policyholders' Service Bureau, whose highly trained technicians study business problems for the sole purpose of advising with employers of workers insured with the Metropolitan. This bureau gives particular attention to the matter of safety devices and is always available to make surveys of such industrial plants.

Grants Receiver's Petition

[FROM OUR REGULAR CORRESPONDENT.]

HOLYOKE, Mass., March 11, 1924.—In the case in equity of the Fitchburg Paper Company against the Whitmore Manufacturing Company of Holyoke, the Superior Court has granted the petition of the receiver, Attorney Russell L. Davenport, which set forth that it was expedient and necessary, and ordered a decree entered that all creditors and all claimants against the Whitmore Manufacturing Company prove their claims up to December 20, before July 7 of this year.

The Court has ordered through this decree that all these claims shall be proved before that date and those failing to so do will be barred from participating in any division of the assets that might be made.

Mr. Davenport is now operating the mill as receiver but said today that he did not know how long it could be operated. He was instructed by the court as receiver to operate it until further notice.

Superintendents to Meet at Dayton, May 22-24

DAYTON, Ohio, March 10, 1924.—A program discussing subjects ranging from apprenticeship in the paper mill, vocational education, to the most highly technical problems confronting the paper mill superintendents has been practically completed for the annual convention of the American Pulp and Paper Mill Superintendents' Association in Dayton, Ohio, in May, under the direction of H. W. Server of The Miami Paper Company, West Carrollton, Ohio, general chairman.

The convention is to open at 9 A. M., Thursday, May 22, at The Miami Hotel. Papers on various problems that confront the superintendents will be presented by authorities at morning and afternoon sessions. The banquet will be held at 7 P. M.

The general business session will be held on Friday morning in Dayton, followed by luncheon at the Manchester Hotel in Middletown, Ohio. The divisional meetings will be held in the afternoon at various places in Middletown. Friday evening at the banquet, which will be held at the Dayton Country Club, "Dusty" Miller, a country editor who is fast becoming famous as an after-dinner speaker, will talk. Charles F. Kettering, president of The General Motors Research Corporation, may have a place on the banquet program, as also will Martin Collins, of the Graham Paper Company, St. Louis.

Saturday will be given over to visits to the various mills and plants of the allied industries of the Miami Valley, many of whom are making special entertainment features for all the visitors.

The following is a partial list of the papers that have been prepared for the convention and will be given during the sessions on Thursday and Friday.

"Apprenticeship in the Paper Industries"—George P. Hambrecht.

"Building and Maintenance of an Organization"—Robt. B. Wolf, R. B. Wolf Co., New York.

"Employment Problems"—Frances S. Pope, Mead Pulp & Paper Co.

"The Beater of Today"—Charles Shartle, The Shartle Bros. Machine Co.

"Drying of Paper"—E. P. Gleason, C. E., Nekoosa-Edwards Paper Co.

"The Development of Recording Devices as Applied to the Art of Paper Making"—M. A. Goetz, General Electric Company.

"The Use and Abuse of Paper Making Felts in Paper Mills"—M. C. Burrell, Orr Felt & Blanket Co.

"Steam and Power in Pulp and Paper Mills"—H. S. Taylor, President T. A. P. P. I.

"Manufacture and Use of Bleached Ground Pulp"—Lyman Beeman, Cons. Waterpower and Paper Co.

"Vocational Education"—Harry P. Carruth, Genl. Manager, Mead Pulp & Paper Co.

"Paper Making Fibres"—B. S. Summers, Port Huron.

"Beating of Kraft"—A. W. Bronk, Deerfield Valley Paper Co.

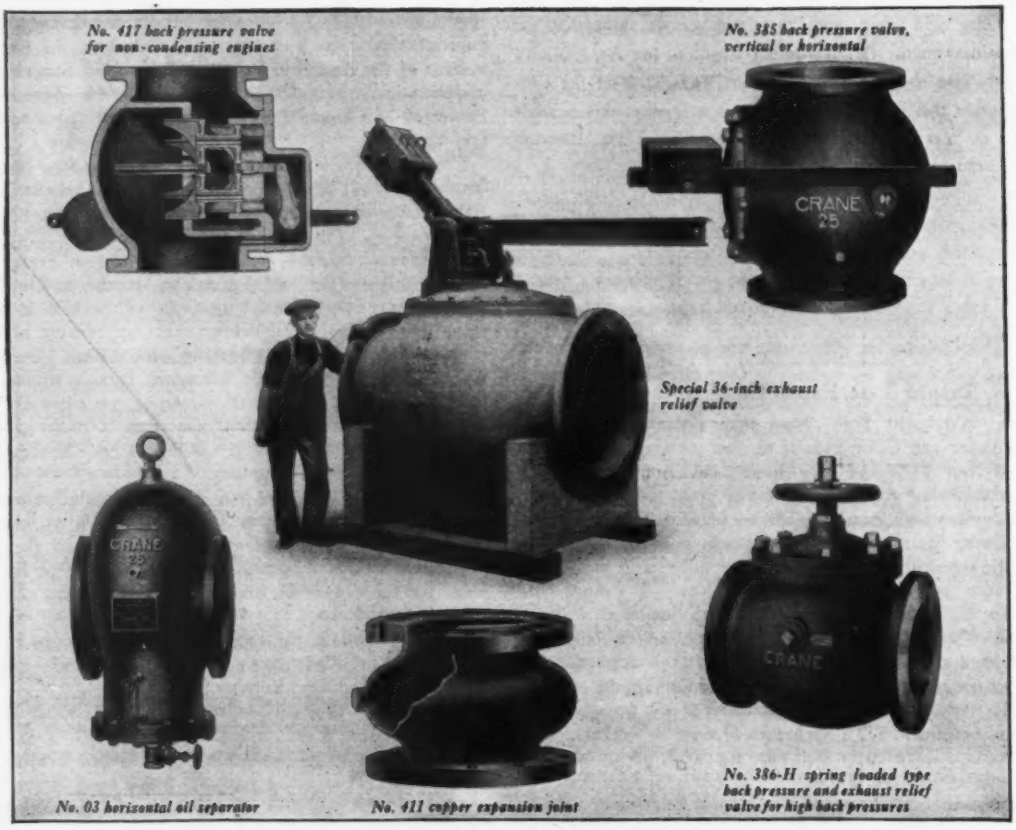
"Tinting of White Paper"—John R. Roberts.

Springfield Publicity Exposition

[FROM OUR REGULAR CORRESPONDENT.]

SPRINGFIELD, Mass., March 11, 1924.—Springfield Publicity Club is arranging for the first annual Western Massachusetts Advertising and Industrial Exposition to be held at the Springfield Auditorium, April 17, 18, 19. The committee in charge of the show consists of M. A. Pollock, advertising manager of the Rolls-Royce Company of America; Walter C. Dearden, advertising manager of the Strathmore Paper Company and Wilred S. Robinson. Western Massachusetts concerns including a large number of paper manufacturers and paper converters will be included in the exhibits.

There will be examples of printing in all of its branches. The advertising features will be unique. The industrial side of Springfield and suburban territory will be featured in various ways with displays of the products of the various concerns engaged in production.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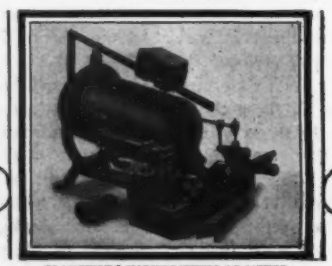

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Conducted by W.G. MacNAUGHTON, Secretary

A LIQUID SULPHUR DIOXIDE PROCESS FOR SULPHITE PULP—II[1]—ITS APPLICATION TO LONGLEAF PINE

By Ralph H. McKee and Donald E. Cable (Department of Chemical Engineering, Columbia University, New York)

(Concluded from last week)

Control Tests

The control tests mentioned in our previous article were applied to extraction tests on chips F with a few minor modifications. For instance the length of extraction for the determination of *benzene residue* as well as for that of *alcohol residue* was placed arbitrarily at seven hours. Because of the high resinous content of the long leaf pine it was found more convenient and more accurate to take an aliquot sample of the dissolved resins for evaporation to dryness rather than to carry it all to dryness as was done in working with the scrub pine. Furthermore, it was discovered that, from a quantitative standpoint, a soxhlet extraction using ether as the solvent gives more nearly the yield of resinous matter which is obtained on extraction with sulphur dioxide than similar extractions with benzene or alcohol. This is clearly shown in Table 2.

Table 2—Yield of Resin from Chips F by Extraction with Three Solvents

Solvent	Time of extraction hr.	Yield of resinous matter based on bone dry weight %
Alcohol (C_2H_5OH)	6¾	7.4
Benzine (C_6H_6)	7	8.81
Ether ($C_4H_{10}O$)	7½	11.78

Now it was seen that according to the leaching test for ether that a residue is obtained after soaking for 28 days which represents a yield of 15.3 per cent. This probably can be taken more or less as a limiting value, such, for instance, as we might have gotten had the wood composing chips F been in the form of a fine sawdust and an extraction of it made with ether for 7 hrs. The values given in Table 2 can necessarily be only regarded as of relative importance or, say, an index of what those solvents are capable of removing from the wood. Inasmuch as liquid sulphur dioxide is known to remove resinous matter from these chips to the extent of 14.6 per cent of their weight it is logical to conclude that the ether serves best as a means for judging what quantity of resinous matter we may expect the sulphur dioxide to dissolve from the wood chips or what quantity of that same resinous matter is left with the wood after one or more treatments with this liquid.

Unfortunately the distinct advantage of ether over benzene in this respect was not discovered until late in our work so that most of the tests that follow give only values for the *benzene residue* and the *alcohol residue*. As described in our previous paper the term *benzene residue* refers quantitatively to the benzene extractives obtained by extraction of the regular chips for a certain length of time using a soxhlet extraction apparatus. The *alcohol residue* only refers to those resinous substances removed by a similar extraction with alcohol following the standard benzene extraction.

Analysis of chips F indicated the following amounts of resinous matter present:

Benzene residue	8.81% (oven dry basis)
Alcohol residue	3.42% (oven dry basis)

This value for *alcohol residue* must not be confused with the 7.4 per cent given in Table 2. The latter value was obtained on fresh chips that had not been first extracted with benzene. Curve V for alcohol was obtained at a temperature of 56° to 72°C. It was found that the temperature of solvent in contact with chips while running an alcohol soxhlet extraction was 61°C. One would therefore be inclined to ask why the value obtained for alcohol in Table 2 does not equal or exceed the value 10.5 per cent indicated by Curve V for an interval of 6¾ hr. The explanation undoubtedly is that during those 6¾ hr. the hot solvent is only in contact with the average chips about half that time and the value 10.5 represents the solution of the resinous matter within the pores of the chips as well as that beyond the external surfaces of these chips, whereas the value 7.4 per cent represents that resinous matter which has not only gone into solution, but has also diffused entirely out and away from the interior of the chips.

Removal of Resins by Means of Pressure Extraction Cell Treatments

Early in our work on the study of a combination extraction and sulphite pulping process it was recognized that in order to successfully apply this process to such resinous woods as the longleaf pine or Western yellow pine it would be necessary to reduce the resin content of these woods to approximately the amount normally present in white spruce. Schorger[12] examined four authentic specimens of white spruce and reported that the ether soluble material (oils, fats and resins) in these specimens varied from 0.90 to 1.63 per cent. So it has been our aim to develop a plan of procedure which would lower the resin content of

[1] Paper Trade Journal, Oct. 18, 1923, Vol. 77, No. 16, pp. 101-4.

[12] Jour. Ind. & Eng. Chem. 2, p. 556 (1917).

longleaf pine chips F to about 1.00 per cent. To reduce the resin content of these chips from about 14.6 per cent to 1.00 per cent requires an overall extraction efficiency of well over 90 per cent.

One of the factors in any batch extraction process which has an important bearing on the total efficiency of extraction has been shown by Hawley[13] to be what is called the *solvent ratio*, namely the ratio of solvent which drains naturally from an extraction cell after a treatment to the solvent which adheres to the substance being extracted. By careful measurement it was found that when chips F were barely covered with liquid sulphur dioxide a solvent ratio of approximately 2.0 was obtained. It is seen from Table 4 of "Discontinuous Extraction Processes" by Hawley[3] that for a solvent ratio of 2.0 and four treatments with repeated fresh solvent extraction a theoretic total extraction efficiency of 96.77 per cent is obtained. Curve II, Fig. I shows that with liquid sulphur dioxide at 15 to 17° about 92 per cent of the total resinous matter is brought into solution after 12 hr., so it was decided to give chips F four treatments at this temperature, using 12 hr. intervals. Accordingly, this was done with a chilling of the cell for 20 min. at 0°C. in ice water before removing the solution. These treatments were made in the pressure extraction cell previously mentioned. After the fourth treatment and after all the adhering solvent had disappeared by vaporization and standing over night in the hood a portion of the residual chips (FS5) were given the standard extraction tests with benzene and alcohol with the following results:

Benzine residue	0.615% (o. d. basis)
Alcohol residue	1.21 % (o. d. basis)

The reduction in benzene residue in this case represents an efficiency of 93.7 per cent which is reasonably close to the theoretical value predicted by Hawley's table. Of the 1.21 per cent alcohol residue about 40 per cent of it is soluble in hot water, leaving a residue of 0.71 of a character which might be objectionable to a slight extent in subsequent paper making operations if it were present in much larger amounts.

Extraction at 40° to 45° C.

By a comparison of Curves I and II (Fig. I) one would conclude that it would be possible to dissolve as high a fraction of the total resinous matter in 4¼ hr. at 37 to 46°C. as would be dissolved in 12 hr. at 15 to 17°C. The next experiment was started with the intention of making four, four hour treatments at 42 to 45°C. The first treatment gave a solution which by taking an aliquot portion indicated that 13.2 per cent of the resins had been brought into solution. This is just 0.1 per cent higher than would be anticipated from Curve I; so one is safe in concluding that at one point at least the accuracy of Curve I was verified.

In the process of beginning the second treatment and as the cell and contents was being heated up to the desired temperature shortly after the bath had reached 42°C. an explosion occurred in which the bottom of extraction cell sheared off and the rest of the cell shot about 10 ft. into the air. Fortunately no one was near the apparatus at the time it exploded. An investigation showed that the probable cause of this accident was that the cell was filled too full with the solvent and on heating it after closing the cell from —10°C. to 43°C. the liquid expanded until no remaining vapor space was left. The warm liquid sulphur dioxide on striking the warm water in the pail produced an effect similar to a steam boiler explosion. A pressure extraction cell similar to the one that was ruptured was tested with a hydraulic pump and was found to withstand a pressure of 400 lb. per sq. in. without breaking. At 45°C. liquid sulphur dioxide develops a vapor pressure of about 90 lb. per sq. in. No further trouble was subsequently encountered in working at 45°C. as long as care was taken that the pressure cell was not at any time filled more than seven-eighths full.

[13] *Ibid.*, 9, 866.

The next extraction (FS11) was made in a way similar to FS5 except that each treatment lasted for 3:50 hr. at 40 to 45°C. followed by a cooling in ice water for 10 min. Treatment No. 1 of this run indicated the dissolving of 12.5 per cent resinous matter while Curve I shows 13.0 per cent as the amount dissolved for the interval under consideration. For treatment No. 4 the solvent ratio was found to be 2.16. This value would approximately apply to treatments Nos. 2 and 3 also. Control tests on the residual chips gave:

Benzene residue	0.76%
Alcohol residue	1.26%

Similar tests using ether instead of benzine at first gave:

Ether residue	0.915%
Alcohol residue	1.01 %

The calculated extraction efficiency, according to the benzene control tests therefore, is 92.3 per cent, and according to the ether tests it is 93.1 per cent. The weights of resinous matter isolated by each of the four treatments were as follows:

From treatment 1	15.2682 g.
From treatment 2	7.3365 g.
From treatment 3	3.0495 g.
From treatment 4	1.7982 g.
Total resins removed	27.4524 g.
Resins left in chips (by calc.)	2.03 g.
Total resins accounted for	29.48 g.
Amount of sulphur dioxide soluble resin, according to curve I for 230 g. chips (air dry weight)	29.9 g.

These results, therefore, tend to confirm the accuracy of the maximum value for that curve.

Judging by the results of extraction experiment FS11 it was thought that the length of time could be reduced from three hours and fifty minutes to three hours at 45°C. (followed by 15 min. at 0°C.) for each treatment without materially reducing the total efficiency of the extraction. Accordingly an extraction (FS15) was made with such a change in time. After the four usual treatments with fresh solvent each time it was found that the residual chips on being subjected to the standard control tests were found to contain:

Benzene residue	0.85%
Alcohol residue	1.27%

Using ether as the preliminary solvent on another lot of the liquid sulphur dioxide treated chips, the following values were found:

Ether residue	1.08%
Alcohol residue	0.99%

By calculation one will find that in this case the actual extraction efficiency with respect to the thoroughness of the removal of resinous matter by the liquid sulphur dioxide is 91.1 per cent, based on the benzene tests before and after that service of treatments and 91.8 per cent, based on the corresponding ether tests.

The chips from extraction FS 15 are evidently sufficiently low in resin content to serve as a satisfactory raw material for making pulp by the sulphite process. Experimental pulping tests on these chips are in progress and will be reported upon later. Assuming that four treatments of chips F with fresh solvent each time is sufficient to yield a satisfactory quality of chips for pulp and paper manufacture, we see from Hawley's figures [14] that an equally efficient extraction would be obtained on five similar treatments by multiple series extraction. A scheme has been worked out in which with 5 digesters in a plant it will be possible to conduct extraction and sulphite cooking operations in such a way that each batch of chips will be given 5 multiple series extraction treatments of 3:15 hr. each, including the time required for pumping the solution from one digester to the next one; 3 hr. for running the sulphite acid into digester after the last treatment, recovering the excess of sulphur dioxide and at the end of the cook for discharging to blow

[14] Jour. Ind. & Eng. Chem., 2, 866, Table IV.

pit and reloading the digester with fresh chips; 13 hr. is allowed for the straight cooking operation. With this scheme two of the 5 digesters will be engaged in the regular cooking operation all of the time.

Possibilities of Shortening the Intervals for Extraction and Cooking

As mentioned earlier in this article the majority of chips F range in size from ¾ to 1⅛ in. From the pulp making standpoint it is considered by a number of authorities that a chip ⅝ in. is sufficiently large.

Little[16] has reported that from a number of measurements made in his laboratory on the fiber length of longleaf pine there was a minimum length of 3.00 mm. and a maximum of 7.40 mm. with an average of 4.60 mm. as compared with 3.0 to 3.5 mm. for spruce. If we assume an average fiber length of 4.60 mm. to the fibers as they occur in the normal wood and calculate the average lengths to which these fibers are reduced in the process of chipping the wood to various sizes we get the values shown in Table III.

Table 3—Calculated Average Fiber Lengths for Various Sizes of Longleaf Pine Chips.

Length of chips (with grain). mm	(with grain). mm.	Average length of fibre obtained in pulp. mm.
¾	9.5	3.10
½	12.6	3.37
⅝	15.8	3.56
¾	18.9	3.70
⅞	22.0	3.81
1	25.4	3.90

It is seen from this table that we can reduce the wood to ⅝ in. chips and still obtain an average fiber length longer than that of white spruce. By working with chips of ⅝ in. size, therefore, it should be possible to reduce the time of each treatment with liquid sulphur dioxide appreciably below the 3 hr. interval when working at 45° C. and still get as efficient an extraction as was reported. Furthermore, on making some commercial pulp and paper making tests on this process it may be found that an ether residue higher than 1.1. per cent in the chips can be tolerated without running into so called, "pitched troubles."

As for cooking it has previously been pointed out that a cooking liquor of any strength up to about 32 per cent free sulphur dioxide can be conveniently obtained by this process. It is interesting in this connection to quote the following statements made by Edwardes[16]:

"The advantages arising from the use of stronger acid in cooking have been repeatedly proved. What the effect of cooking with an acid of 10 to 15 per cent total sulphur dioxide concentration means I can not definitely say. It would be expected that increased yield due to more even penetration would be obtained together with a shorter cooking time and lower bleach consumption. Such experiments as we have made indicate that with an acid with double the sulphur dioxide concentration than that usually employed, the time was decreased by 25 per cent and the yield increased by 10 per cent based on normal yields."

MacNaughton[17] in a recent article states, "The tendency has been towards the use of an acid of greatly increased sulphur dioxide content. While formerly about 3 per cent was the rule the practice now is for a strength of 6 per cent and higher." In speaking of the Ritter-Kellner system he says that while even at first the period of digestion was comparatively short, about 12 hr. in more recent years it was frequently reduced to 6 hr. and less.

In view of these statements it is possible that the time necessary for making a sulphite cook can be considerably reduced below the 13 hr. interval allowed in our above mentioned scheme of operation.

[16] Jour. Ind. & Eng. Chem., 8, 102 (1916).
[17] Paper, April 21, 1920, p. 92.
[17] This Journal, March 22, 1923, p. 49.

Production of Rosin and Turpentine

Some experimental work has been done on the preparation of rosin and turpentine from the liquid sulphur dioxide extract of chips F. A rosin lighter in color than grade F has been obtained having a melting point of 66 to 68° C. It would require large scale operation to determine just what grade and quality of rosin could be obtained in commercial operation by this process, but there is little question in our minds but that a product can be obtained readily which is fully as good as wood rosin now on the market.

Chips F also yielded about 1.5 per cent of their weight in the form of turpentine and pine oil. This is a fairly good yield, considering the fact that the chips had been allowed to air dry for several months. Fresh chips undoubtedly would give a higher yield of these volatile constituents.

A Consideration of Future Developments

In the past wood using industries of this country have gone blindly ahead in using up our timber resources without any consideration as to the needs of this country in the future. The idea of reforestation was scoffed at for economical reasons and without doubt in the past this attitude of indifference may have been justified. But now we are in a period of transition where the wise investor is the one who looks carefully after the permanence of the industry in which he is interested. It is on this basis that the sulphur dioxide process is of particular promise, especially when applied to the resinous pines of the South.

The statement is made that although the bulk of the standing timber of the United States is in the Far West, the bulk of the annual growth is now in the South[18]. According to Alexander[19], "We estimate now that the pine forests will not last more than 20 years at the rate of present cut" (referring to the forests of the South). He further states, "We demonstrated beyond the question of doubt that in 15 years time you could grow trees sufficiently large for pulp wood."

Of course there are a number of sulphate mills already established in the South which can be assured of a more or less permanent existence if they are shrewd enough to adopt a policy of reforestation. They are producing sulphate turpentine, really wood turpentine, but so far as is known to us none of these mills manufacture and sell rosin size, to say nothing of free rosin. This is the one feature, therefore, by which the liquid sulphur dioxide process can be distinguished from all other naval stores producing methods. It assures the manufacture of free rosin as long as we have pine trees of about fifteen years in age or over.

The present methods of obtaining rosin in this country are destined eventually to fall more or less into disuse. And that time will probably not be much longer than a score of years from now. Quoting from Harper[20], "It has become apparent that the regular naval stores industry is on the wane. Trees for tapping purposes are difficult to obtain and then only by payment of large royalities for the leases. The labor conditions further demoralized the regular gum distillation until at one time the production was only about one-half of pre-war conditions."

Greensfelder[21] says, "Looking a very few years into the future we can see the day when this country will have no forests from which to produce naval stores. The situation is made more acute by the fact that after being gashed for the production of rosin and turpentine, these trees become very inflammable and the risk of disastrous forest fires is greatly increased. Consequently many owners of forest land refuse to allow their timber to be worked for turpentine."

Forbes[22] states, "The United States Forest Service estimated (July, 1920) that Louisiana had sufficient standing longleaf and

[18] Technical Notes, No. 117, Forest Products Laboratory (1921).
[19] Amer. Inst. of Chem. Eng'rs, Trans. Vol. XIII, Part 2, p. 65 (1920-'21).
[20] "Naval Stores," by Gamble, p. 247 (1921).
[21] Compressed Air Mag., 27, 199 (July, 1922).
[22] "Naval Stores," by Gamble, p. 240.

slash pine to yield 13,500 crops[24] of naval stores. This is 64 per cent of the entire estimated yield of naval stores from timber now standing in the South and available for cupping. Less than ten per cent of the longleaf pine region of Louisiana is today farmed."

Greensfelder mentions that about 10 per cent of this country's output of rosin and turpentine has been obtained as "wood rosin and turpentine" from the stumps left in the ground after the yellow pine timber has been cut. Lockwood[23] also says, "It is estimated that the 1920 production of wood rosin and turpentine amounted to approximately 10 per cent of the total U. S. naval stores production of that year.

Although the production of wood rosin and turpentine from stumps and lightwood is now reaching fairly large proportions it is foolish to expect the supply of these stumps and pieces of lightwood to be any less exhaustible than the old trees from which they came. In other words this industry of producing rosin and turpentine from lightwood can not be regarded as being of lasting importance when we look thirty years into the future.

Considering all these facts, the liquid sulphur dioxide process would seem to possess a permanency of character in this country so far as the production of naval stores is concerned which can not be claimed for any of the present commercial processes for producing free rosin. As for the manufacture of sulphite pulp from such resinous woods as the longleaf pine, we know of no other process with which it would be obliged to compete.

[23] *Ibid.*, p. 247.
[24] A "crop" is assumed by the U. S. Forest Service as that number of trees which would give 8,000 faces. Each tree receives from one to four boxes, depending on its diameter, so that approximately 4,000 trees, covering an area of about 200 acres, are required to make one crop. Over a working interval of four years (the usual length of time a tree is worked in this country for its gum or oleoresin) a yield of about 110 tons (790 bbl.) of rosin, and 28 tons (7,560 gal.) of turpentine is obtained per crop on an average.

Pulp Wood Consumption 1923-22

WASHINGTON, D. C., March 10, 1924.—The Department of Commerce anounces that according to preliminary statistics compiled by the Bureau of the Census, acting in cooperation with the Forest Service, United States Department of Agriculture, the total quantity of pulp wood consumed by 127 mills was 3,247,165 cords in 1923 as against 3,033,543 cords by the same mills in 1922. The production of wood pulp by these mills in 1923 amounted to 2,079,772 tons as against 1,883,827 tons in 1922. These plants consumed more than 54 per cent of the total quantity of pulp wood used in 1922 and produced nearly the same per cent of the total quantity of pulp.

In this comparative statement, which covers nearly one half of the total number of active mills, 20 states are represented. The returns indicate that the total figures for 1923 of consumption of pulp wood will exceed those of 1922 by about 7 per cent, predicating a total consumption of approximately 5,940,000 cords of wood, providing the percentage of increase holds true for the mills which have not reported.

Figures for 1923 are preliminary and subject to change if necessary.

Comparative statement follows:

COMPARISON OF 127 IDENTICAL MILLS—1923 AND 1922.

	1923	1922
Cords of pulp wood consumed.....	3,247,165	3,033,543
Tons of wood pulp produced.....	3,079,772	1,883,827

Inquiry Regarding Special Paper Machine

A member inquires if there are not fourdrinier machines operating in this country with a top and bottom wire, something along the lines of a top and bottom press felt.

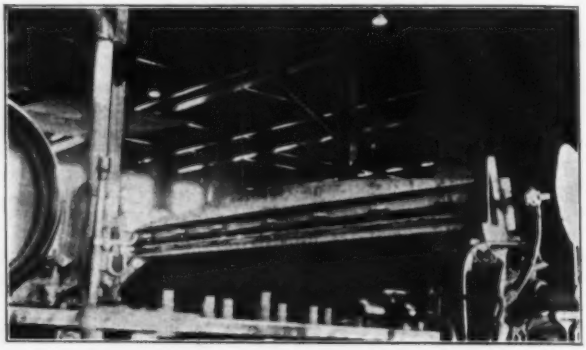
Replies will be appreciated.

TECHNICAL SECTION, PAGE 104

The Kenwood Guard Board

Close study of jacket and couch conditions in many mills has enabled the F. C. Huyck Company, felt and jacket manufacturers of Albany, N. Y., to devise a guard board for jackets which is based on sound and logical principles. This guard board has been tried in a number of mills and has proved satisfactory. Installation of one was made in the Laurentide mill last Sunday on number seven machines.

The guard board on a jacket is there for the purpose of squeezing as much as possible out of the jacket before the jacket comes in contact with the formed but still very moist sheet of paper. The sheet passes through a press whose top roll is covered by the jacket. The amount of pressure that it is possible to give the sheet in passing through this press must be finely regulated by adjustments, and if the jacket carries only a trifle of additional moisture it will displace the fibres in the formed sheet and make a fault in the paper which spoils it. So the guard board which takes this moisture out of the jacket is a most important part of the machine.



THE KENWOOD GUARD BOARD

The pressure of the guard board on the jacket has always, up to now, been regulated by several screws at uniform distances apart across the jacket. While it was desirable that the pressure across the entire width be uniform, this adjustment was at best a matter of guess. The Kenwood board insures that the pressure of the guard board on the jacket will be uniform throughout, by eliminating the adjustments guess. It is believed by the designers of this new device that many jacket troubles were caused by the irregular pressure on the jacket of the old guard board, and that the jackets will now go to the end of their usefulness without the need of local adjustments in the width of the board.—LE JOURNAL, *Laurentide, P. Q., January* 19, 1924.

Florida Paper Mills Asking Bids

JACKSONVILLE, Fla., March 10, 1924.—The Florida Paper Mills Co., a subsidiary of the Grass Fibre Pulp and Paper Company, Leesburg, Fla., is perfecting plans for the early erection of its proposed plant in this vicinity, on tract of land acquired a number of months ago. Bids are being asked for the building of the initial units and it is expected to break ground before the close of the month. A number of 1-story structures will be equipped for production, utilizing raw materials from the plant of the parent company. The new mill will cost in excess of $250,000.

Vacuum Paper Machine Drier

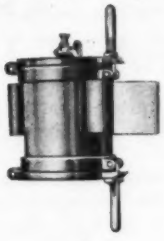
Ogden Minton invites members who are interested to inspect his vacuum paper machine drier at South Norwalk on Friday and Saturday, April 11 and 12, 1924, following the Annual Convention in New York. Members intending to avail themselves of this invitation are requested to advise Mr. Minton, Smith Building, Greenwich, Conn.

THE MEASURE OF SLOWNESS

By Arthur B. Green, Manager at Middletown, Ohio, for the Nashua Gummed & Coated Paper Company.

Without giving a thought to the quality of the paper, there is nothing more vital to the cost at which a given paper can be made than the machine speed. Once having fixed upon the character of paper which is to be made, and assuming that the machine speed has thereby been determined, nothing contributes more to the efficiency of the mill than the ability to maintain the right machine speed, coupled with the required character of sheet.

Here we have set down two sentences. Probably no paper maker will have any quarrel with either. Probably they express thoughts as frequently passing through the mind of the papermaker as any other thoughts in his cosmos. But they are full of undefined terms. Let any papermaker, of however much experience, attempt to figure out accurately, starting with any furnish of pulp that he may choose exactly what speed he should expect to attain in making a sheet of a character he has chosen to make, and he will find that the apparently definite factor of speed is scarcely less nebulous than the highly indefinite factor of character. Somehow the two have to be joined together. Their relationship must be found.



Moreover, when these two factors of character and machine speed have been put down in figures, it will turn out that the slowness of the stock, having a very great bearing on the speed attainable, is also entangled in the factor of character with such other things as hardness, sizing effect, formation, finish, bursting strength, folding endurance, shrinkage on drying, all of which and more must be consciously taken into account in any description of a sheet of paper. Such is the problem. No less than all of this is faced by every papermaker every time that he starts an order in the mill.

Now we have progressed. Instead of setting down undefined terms, we have separated the problem into a set of factors each of which is capable of definition. A measurement can be had of each. We should have no right to speak of getting at the relationship of speed and character by means of *figures* if this were not the case. The question then is, shall we continue to *guess* our orders through our mill, or shall we begin in a modest way to *engineer* them through?

That no doubt depends a good deal on the pressure of competition, the wisdom of buyers and users, and our own complacency. But facing the matter with a desire to get the truth, there appears to be no reason why those methods of measuring that offer an opportunity to replace uncertainty with precision should not be taken advantage of. Certainly if enough pause is taken to reflect for a moment on the breadth of the technical problem involved in the making of a commercial sheet of paper, to weigh each of the important factors that have been mentioned, there will be no danger of throwing the experienced mind out of balance if we turn some emphasis now on the single factor, slowness.

How Problem Was Solved

Slowness has been subject to accurate measurement in the United States for more than ten years. The history of the development is of interest, first because of the simplicity with which the problem was finally solved, and secondly, because to follow the story is one way to grasp the principle itself.

If you take some stuff from a beater, for example, or, worse yet, from the flow-box of the papermachine and place it in a container with a perforated bottom, the stuff will drain. At first, the rate of draining is rapid. Solid water comes through. But very suddenly the solid stream gives place to dripping, and this dripping continues indefinitely. It may last all day, or even for a week. No such indefinite time for draining can be allowed for the fourdrinier wire, in the course of the commercial operation of making paper. The difference between stuff that is relatively free and stuff that is relatively slow is seen on the fourdrinier wire at once, in the course of a second or two, or perhaps a fraction of a second. Yet after tedious experiments no way seemed possible of duplicating with a closed container the delicate conditions that exist every day on the machine wire.

For example, two samples were prepared at exactly the same density, one from the stock that was known to be free and the other from another stock that was known to be slow. They were drained through the same mesh in the same vessel for carefully measured periods of seconds and the amount of water lost by each period was accurately weighed. This experiment was made not once but again and again, because it seemed almost impossible that it should not lead to accurate and true results. Yet that method had to be abandoned. Instead of proving more accurate than the judgment reached by watching the stuff on the machine wire, it was found less accurate, and in some cases actually misleading.

Precise Measurement Seemed Hopeless

Apparently so hopeless did it seem to get a precise measurement of this simple thing, that reliance was beginning to be placed on the so-called sedimentation test, instead of a slowness test. Then the Schopper-Riegler patent was published. A very simple trick had been devised by these men in Austria whereby the elusive "end-point" of the draining test, with which we had been struggling, was made definite and extremely delicate. The explanation is seen in the illustration.

To the chamber, or vessel with its perforated bottom, they had added a funnel underneath to catch the water and to lead it off in two directions at once. It could escape through the outlet numbered 7 and also through the outlet numbered 12. Outlet 7 was an orifice accurately standardized as to diameter and length, so that the rate at which water would pass through it under a given head was fixed. Outlet 12 started from the side of the funnel a fixed distance above outlet 7, so that just as long as any water overflows through outlet 12 there is substantially a fixed head on orifice 7 and orifice 7 will carry off water at a fixed rate.

The variable rate at which water will drain from a body of stuff was thus brought into comparison with a fixed rate of flow. As long as the rate of draining is greater than the rate of discharge through orifice 7, there is a discharge through the overflow outlet 12. As soon, however, as the rate of draining falls below the fixed rate of discharge through orifice 7, then the overflow through outlet 12 is at once cut off. Here, then, was a method of showing up very delicately in a few seconds exactly what is seen every day on the fourdrinier wire as between stuff that is free and stuff that is slow. Samples to be tested have to be prepared accurately to a fixed density, and the test has to be conducted at approximately a

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fixed temperature, but the test is so delicate in its readings that a series of readings on one sample will be uniform within 2 per cent, and readings can be made at the rate of about 2 each minute.

The particular apparatus shown in the illustration is further refined as compared with the original Austrian invention, for the purpose of removing the test from human error and speeding up the operation. The upper chamber is fitted with a top and bottom lid. Each lid is clamped home against a water-tight gasket. The upper lid is penetrated by a pet-cock. The lower lid when clamped home nearly touches in lower surface of the perforated metal forming the bottom of the draining chamber. This perforated metal is carefully standardized as to thickness and as to size and frequency of perforations.

When Lower Lid Is Closed

With lower lid closed, the chamber is filled flush with stuff at a predetermined density. The density ordinarily used is 0.5 per cent. To facilitate filling flush, the chamber is designed to hold just one liter. The sample is gently stirred until its surface assumes a creamy appearance. The upper lid is then clamped home with pet-cock open. The pet-cock is then closed. With the head of the chamber thus rendered water-tight and air-tight, the lower lid is unclamped and allowed to swing back out of the way. Draining is then immediately started by opening the pet-cock.

It adds nothing to the delicacy of the test to collect the water discharged through outlet 7. The degree of slowness is expressed in cubic centimeters, or grams, of water discharged through the overflow outlet 12. Free stocks will discharge more and slow stocks less.

This instrument is available through the Star Brass Manufacturing Co., Boston, Mass.

CURRENT PAPER TRADE LITERATURE

Abstracts of Articles and Notes of Papermaking Inventions Compiled by the Committee on Abstracts of Literature of the Technical Association of the Pulp and Paper Industry

Raw Materials

Statistical Review of Forests and Pulpwoods. Anon. *Papierfabr.* 21, 429-431 (Sept. 23, 1923). The review is confined mainly to the European countries and most of the data were obtained in 1913.—J. L. P.

American Pulpwoods. Suitability of the Various Species of American Woods and for Pulp and Paper Production. Sidney D. Wells. *Paper Ind.* 5, 642-669 (July, 1923); 797-803 (Aug., 1923); 961-965 (Sept. 1923); *Paper* 32, No. 14, 7-14 (July 25, 1923); No. 15, 6-8, 12, 16, 18 (Aug. 1, 1923) *Pulp & Paper* 21, 743-746, 771-774, 791-794, 819-821, 843-846 (July 26, Aug. 2, 9, 16, 23, 1923). A revision of a previous article by Kress, Wells and Edwardes (*Paper*, July 29, 1919) in which many new species have been added and many of those in the original article changed to conform with later experience.—A. P.-C.

Treatment of Tarpaulins for Their Transformation Into Paper Pulp. E. Lepaulle. Fr. pat. 558,512. Old tarpaulins are generally available in the compressed form. They are cut up into pieces about 25 to 30 cm. square and 10 to 12 cm. thick, treated for about 8 hrs. at 1 to 2 k. pressure and 115° C. with a milk of lime containing an excess of lime to decompose the oil coating. The mass is cooled rapidly by addition of cold water and the decomposed oil combines with the excess of lime. The rags thus obtained are drained, sorted, cut, according to usual paper mill practice, thoroughly washed with cold water, and treated for about 5 hrs. with a weak soda ash solution at a pressure of less than 1 k. They are transformed into pulp in the usual manner.—A. P.-C.

Paper De-Inking Process. Paul Gourcet and H. Regnault. Fr. pat. 559,897. The paper is first subjected to the action of a liquid which can dissolve the vehicle of the ink, consisting of an emulsion of a liquid fatty acid (e.g., oleic acid) in an aqueous solution of an alkaline salt of a sulphonated or unsulphonated fatty acid (sulpho-oleic, sulphoricinoleic, sulpho-resinic). It is next treated with a liquid which can remove the liberated carbon or other pigment, liquid volatile hydrocarbons being well suited for the purpose. Finally, this liquid and pigment are removed from the pulp, e.g., by means of a centrifugal screen.—A. P.-C.

Chemistry of Wood. VI.—The Results of Analysis of Heartwood and Sapwood of Some American Woods. G. J. Ritter and L. C. Fleck. *Ind. Eng. Chem.* 15, 1044-1956 (Oct., 1923). Analyses of five hardwoods and of five softwoods are given. Softwood shows a higher yield of water, alkali, and ether extractive, but a lower yield of cellulose and lignin in heartwood than in sapwood. Hardwoods are divided into two classes: (1) those with high extractives in the sapwoods, and (2) those with high extractives in the heartwood. High yields of extractives in heartwood or sapwood are accompanied by low yields of cellulose and lignin. Data show that the ratio between methoxyl and lignin is considerably higher in hardwoods than in softwoods.—A. P.-C.

Caro Fiber. F. Tobler. *Faserforschung* 3, 228-233 (1923). Caroa is a South American name for certain fibers of the Bromelia family. It is claimed that by cooking with sodium carbonate, a fiber may be obtained which, while inferior to jute for textile purposes, is a high grade of cellulose suited for fine paper manufacture and artificial silk.—C. J. W.

Sulphite Process

Basic Principles Underlying Gas Absorption. E. M. Baker. *Chem. Met. Eng.* 29, 499-501 (Sept. 10, 1923). A brief review of the more important articles on the practical applications of basic principles involved in this field and of the method of attacking the problem.—A. P.-C.

Tower Fillings for Industrial Absorption. Paul D. V. Manning. *Chem. Met. Eng.* 29, 504-505 (Sept. 10, 1923). A discussion of the effects of fillings on scrubbing efficiency in absorption towers, with a brief description of some of the commoner and better known types of fillings, and of the Brégeat wire filling which has recently been introduced in European practice.—A. P.-C.

A Liquid Sulphur Dioxide Process for Sulphite Pulp. Ralph H. McKee and Donal E. Cable, *Paper Trade J.* 77, No. 16, 101-104 (Oct. 18, 1923). The process consists essentially in chipping the moderately dried wood, dissolving out the turpentine and rosin by the use of liquid sulphur dioxide and then cooking the chips with the ordinary sulphite acid (R. H. McKee and H. H. Holmes, U. S. pat. 1,360,658, Nov. 30, 1920). Experimental work carried out in determining details of procedure for commercial application of the process is described. The progress of extraction by means of sulphur dioxide was followed by determining benzine (b.p. 80 to 82°) extract (A) (extraction for 6 hrs. in a Soxhlet) and alcohol (95%) extract (B) on the residue (extraction for 7 hrs. in a Soxhlet), expressed in both cases on the oven-dry weight of the extracted chips. Preliminary experiments using a Soxhlet working under 75 lb. pressure with sulphur dioxide at 25 to 40° C. showed that A decreased much more rapidly than B at the beginning; and as A consists essentially of the resine and B of gums and lignin-like compounds pushing the extraction too far will give an impure resin. Tests carried out with an iron pressure cell (described in detail) showed that: extraction at relatively low temperature (0° to 15° C.) will give as efficient extraction as at high temperatures and pressures, and the resin will probably be purer; the sulphur dioxide adhering to the extracted chips after draining off the bulk of the solvent is best removed by passing a current of sulphur dioxide under 5 to 10 lb. pressure superheated to about 70° to 90° C. through

the digester; the best lubricant would probably be a mineral oil of the type of those used in medicine.—A. P.-C.

Sulphite Pulp from Pine Wood. Anon. *Zellstoff u. Papier* 3, 225 (Oct. 1923); *World's Paper Trade Rev.* 80, 1162, 1164 (Oct. 5, 1923). Comparative physical and chemical tests on pulps made from pine and spruce woods, as carried out at the Serlachius sulphite mill in Finland, showed that in general there is little difference between them. The strength as well as the appearance of the paper made from these pulps were the same.—J. L. P.

Sulphite Pulp. E. L. Larsen. Swed. pat. 51,101, Mar. 1, 1922. The time of cooking is reduced by subjecting the wood to a pressure treatment before it is fed to the digesters.—A. P.-C.

A Modern Sulphite Mill in Finland. Gösta P. Genberg. *Paper Trade J.* 77, No. 16, 107-108 (Oct. 18, 1923). Brief outline of the process employed in a modern Finnish mill making 120 metric tons of high grade Ritter-Kellner sulphite a day, of which 65% is easy bleaching and 35% strong. The mill in question is one of the largest and most up-to-date in Europe, operations having started in 1921.—A. P.-C.

Transformation of Sulphite Pulp Into a Pulp Having the Properties of Rag Pulp. *Hymmene A/B.* Swed. pat. 53,422. Sulphite pulp is boiled in an alkaline solution of a sulphite, agitating constantly, either at atmospheric or at higher pressure. This renders the pulp flexible and suitable for use instead of cotton rag stock in printing papers.—A. P.-C.

The Decker Process of Cooking Sulphite Pulp. O. L. Berger. *Paper Mill* 47, No. 40, 4 (Oct. 6, 1923); *Paper Trade J.* 77, No. 15, 47-48 (Oct. 11, 1923); *Pulp & Paper* 21, 1077-1078 (Nov. 1, 1923). Brief description of the process and of its merits, with discussion following the presentation of the paper. *Paper Mill* 47, No. 42, 4 (Oct. 20, 1923). Reply to criticisms.—A. P.-C.

Chemistry of the Sulphite Process—V. Effect of Various Compositions of Acid Upon Yield and Quality of Pulp. R. N. Miller and W. H. Swanson. *Paper Trade J.* 77, No. 15, 51-52 (Oct. 11, 1923). That part of the so-called "free SO_2," in the cooking liquor which is present as excess over that required to form calcium bisulphite is the factor having the greatest influence on the character and yield of pulp, and under the conditions studies the amount or concentration of calcium base is without great influence if it exceeds a certain minimum. The sulphite process should be considered especially as an acid hydrolysis of wood.—A. P.-C.

Waste in the Sulphite Industry. O. L. Berger. *Paper Mill* 47, No. 43, 4, 10 (Oct. 27, 1923); *Paper Trade J.* 77, No. 18, 49-51 (Nov. 1, 1923). A discussion of the waste of wood, chemicals, steam, power and labor, with hints as to reducing them.—A. P.-C.

Graphical Control of Combustion Gases. Rudolph Sieber. *Zellstoff U. Papier* 3, May 1923); *Paper* 33, No. 5, 3-4, 21; No. 6, 7 (Nov. 22, 29, 1923). See *Paper Trade J.* 77, No. 13, 56 (Sept. 27, 1923.—A. P.-C.

Volumetric Estimation of Sulphur Dioxide and Thiosulphuric Acid by Oxidation with Bromine. C. Mayr and J. Peyfuss. *Z. Anorg. & Allg. Chemie*, 127 (1923); *Papierfabr.* 21, 495-498 (Nov. 25, 1923). Bromine can be used in the estimation not only of sulphur dioxide but also of thiosulphuric acid, which it oxidizes to sulphuric acid unlike iodine. Either a bromate or bromine may be used, the excess being titrated with iodine. Comparison of this volumetric method with gravimetric methods gave good agreement. —J. L. P.

Determination of Total Sulphurous Acid in the Fresh Liquors of Pulp Mills by Means of Hypochlorite Solution. Braun. *Wochbl. Papierfabr.* 54, 2892-2893 (Nov. 10, 1923). The methods of Winkler and Streeb, generally used for the determination of total sulphur dioxide in cooking acid, are in error. The former is expensive and the latter does not show a sharp end-point. The use of hypochlorite solution ($CaOCl_2$ or $NaOCl$), in the presence of iodo-starch as an indicator, is inexpensive as a control test and gives a sharp reaction. The titration is carried out as follows: To distilled water containing a few drops of iodo-starch solution 10 cc. of tower acid are added using a pipetee. This solution is titrated with a 1-normal bleach solution (containing 35.45 g. Cl per liter) until a blue color develops. The number of cc. consumed multiplied by 0.32 gives the content of the liquor in total SO_2.—J. L. P.

Cooling and Absorbing System for Sulphur Burner Gases. G. A. Richter, and G. E. Wightman assignors to Brown Co. U. S. pat. 1,469,959 Oct. 9, 1923; *Paper Trade J.* 77, No. 24, 54 (Dec. 13, 1923). The distinctive feature of the system is direct contact of the burner gases with cold water, in a cooling tower filled with tile, spiral brick, or other suitable filling material. The spray of water is so regulated that the liquid leaving the bottom of the tower has a temperature of 130° to 150° F., and so when saturated carries from 0.2 to 0.7 of SO_2. To remove this gas as far as possible, about 10% of the tail gas (unabsorbed after passing through the usual lime absorption towers) is run through a recovery tank through which flows the hot liquor from the cooling tower. This tail gas is thus strengthened up to as high as 8% SO_2, which is approximately the strength of the gas from the first absorption tower, and the gas is led back into the system at this point. The SO_2 content of the tail liquor is reduced to from 0.02 to 0.10%. The chief merits claimed for the system are elimination of free sulphur and of sulphuric acid, and greater flexibility of operation without sulphur loss.—A. P.-C.

Notes on the Preparation of Sulphite Liquor. Paul Bernard. *Papier* 26, 1177-1184 (Oct. 1923). General description of the preparation of sulphite liquor.—A. P.-C.

Yield from Sulphite Digesters. A. Klein. *Wochbl. Papierfabr.* 54, 1241-1242 (1923); *Paper* 32, No. 19, 5-6 (Aug. 29, 1923). Ramming the wood in the digester increases the yield of pulp by approximately 8 kilos per cubic meter of digester capacity. Practically the same increase is obtained by filling, steaming, and filling up again with wood before starting the cooking proper.—A. P.-C.

Apparatus for and Method of Recovering Sulphur Dioxide from Digester Blow Gases. George A. Richter assignor to Brown Co. U. S. pat. 1,469,958, Oct. 9, 1923; *Paper Trade J.* 77, No. 24, 54 (Dec. 13, 1923). The gases from the blowpit are led into the foot of a wooden condensing tower, which is filled with spiral brick or similar filling material. Water under pressure is sprayed down through the tower, a trapped drain being provided at the bottom of the tower to carry the water away; and the water and gases travel on the counter-current principle. The flow of water is carefully controlled so that the outgoing water has a temperature above 180° F., preferably about 190° to 200° F., while the gases going out at the top are below 100° F., and can be sent directly to an absorption tower where the SO_2 is absorbed by means of lime or magnesia in a known manner. The water from the base of the condensing tower is delivered into contact with the jet of pulp and waste liquor issuing from the blow and is thus thoroughly broken up and brought to the boiling point, so that any small amount of SO_2 still contained in the water is liberated.—A. P.-C.

A New Method for Making Pine Sulphite Pulp. G. P. Genberg. *Paper Mill* 47, No. 51, 26 (Dec. 22, 1923). Results of analyses and of strength tests of pine sulphite prepared by the Alfthan-Serlachius process, of spruce sulphite prepared by the usual process, and of paper prepared from these two pulps showed practically no difference between the pulps and papers prepared from the two woods.—A. P.-C.

Manufacture of Sulphite Pulp Under High Pressure and Short Cooking Time. Carl G. Schwalbe. *Papierfabr.* 21, 493-495 (Nov. 25, 1923). High pressure, high temperature, high acid concentration and long cooking time are factors which contribute to the loss in fiber strength in the sulphite process. A method of cooking is described whereby the process takes place in two stages: first, the fibers are impregnated with the acid at a low temperature, about 50°, and second, a quick cook is brought about in 2 to 3 hrs.

The properties of the pulps so produced are being investigated.—J. L. P.

Pulp Cooking With Sodium Sulphite. Willi Schacht. *Wochbl. Papierfabr.* 54, 2851-2852 (Nov. 2, 1923). Reference is made to the American patent by Bradley and McKeefe for the production of pulp by digestion with sodium sulphite. Priority is claimed for the use of salt solutions in the manufacture of pulp. The sodium monosulphite process will only come into general use when the alkali salts are very cheap. It is suggested that in the deVains process the raw material be given a pre-treatment with sodium sulphite, instead of caustic soda.—J. L. P.

Process for Loading Pulp Digesters and Similar Containers. Zellstoffabrik Waldhof and Adolf Schneider. Ger. pat. 385,225. *Papierfabr.* 21, 527 (Dec. 16, 1923). The material to be packed in the digester, such as chips, etc., is pressed into briquets with or without the use of a binding material.—J. L. P.

Sulphite Waste Liquors

The Value of Waste Lime as a Fertilizer. H. J. von Feilitzen. *Kungl. Landtbruks-Akademiems Handlingar Och Tidskrift* 71, No. 7, 567-587 (1922); *International Review of the Science & Practice of Agriculture, N. S.* 1, 88-91 (1923). The calcium residues obtained in the recovery of soda in the sulphate process consist for the most part of calcium carbonate with a slight amount of hydrate and sulphate and traces of incompletely oxidized sulphur compounds; there are also a little hydrate and carbonate of sodium present. These calcium residues are collected in large quantities by the factories but have hitherto been little used for improving the land, because agriculturists have a prejudice against this substance. At the time of the study, the 26 Swedish factories had at their joint disposal about 321,000 tons of waste lime (as CaO) available for agricultural purposes, while the annual production is about 108,000 tons. The lime waste of the cellulose factories is used only to a very small extent by agriculturists for liming the land, though good results have always been obtained with it on farms belonging to the factories. Chemical analysis showed a calcium carbonate content varying from 69 to 90%, calcium hydroxide, 2 to 11%, calcium sulphate, 0.03 to 1.67%. Among the incompletely oxidized sulphur compounds present in the waste calcium were: calcium thiosulphate, 0.0 to 0.76%, sulphur as sulphite, 0.005 to 0.10%. The remainder (7.52 to 21.26%) consisted of silicates having no action upon plants. Judging from its chemical composition lime waste is quite innocuous and this is entirely confirmed by cultivation experiments made with barley and mustard. Both in small and in large applications, the waste lime proved equivalent to slaked lime.—C. J. W.

Removal of Organic Matter in Sulphite Waste Liquor by Means of Burner Gases. A. S. Sulfitsprit. Nor. pat. 34,835, May 1, 1922. Gases from sulphur or pyrites burners are subjected to the action of electric sparks which convert the oxygen into ozone, and the latter oxidizes the sulphur dioxide into sulphur trioxide. The gas is then passed through the waste liquor which is subsequently subjected to the temperature and pressure necessary for the decomposition and preciptation of the organic matter.—A. P.-C.

Fermentation of Waste Sulphite Liquor. Erick Hagglund. *Svensk Kemisk Tid.* No. 7 (1923); *Zellstoff u. Papier* 3, 183-193 (Aug. 1923); *Papierfabr.* 21. 401-405 (Sept. 2, 1923), 409-412 (Sept. 9, 1923). In the production of ethyl alcohol from waste sulphite liquor by fermentation, small quantities of acetaldehyde are formed. The statements of Neuberg and Reinfurth that the aldehyde formation is due to the relatively small decomposition constant of the acetaldehyde-sulphurous acid compound, and of Sieber that the quantity of aldehyde produced is proportional to the amount of loosely bound sulphur dioxide, are reported by the author to be incorrect. The hydrogen ion concentration of the unfermented liquor was found to materially influence the quantity of acetaldehyde produced. A hydrogen ion concentration of PH 4.0 to 4.8 is favorable to aldehyde formation; a PH 5.0 to 6.0 gives the minimum amount of aldehyde and an alcohol yield from 0.53 to 0.82 g. per 100 cc., depending on the composition of the liquor. Pre-treatment with hydrochloric acid, followed by neutralization and fermentation, increased the alcohol yield by approximately 17%.—J. L. P.

Recovering Sulphur Dioxide from Sulphite Waste Liquor. H. A. E. Nilsson. Swed. pat. 51,399, Apr. 5, 1922. The liquor is driven out of the digester into a closed vessel by means of the pressure in the digester. The sulphur dioxide and some steam are evolved and are drawn into an acid tank by suction induced by keeping the liquid in the tank in continuous circulation through an ejector connected with the container. The suction force of the ejector is regulated so as to maintain approximately atmospheric pressure in the acid tank.—A. P.-C.

Proper Use of Sulphite Waste Liquor. Ralph H. McKee. *Paper Trade J.* 77, No. 15, 49-50 (Oct. 11, 1923); *Paper* 33, No. 2, 5-7, 21 (Nov. 1, 1923). A plea for the production of sulphite alcohol and transformation of the residue from the fermentation into fuel (see *Pulp & Paper* 17, 198, 1921). Figures are given showing a cost of $0.2617 per gal. of 95% sulphite alcohol, and a daily production of fuel equivalent to 34.1 tons of 14,000 B.t.u. coal for a 100 ton sulphite mill. The total yearly profits and savings from the combined operation of the alcohol and fuel plant are estimated at about $125,000.—A. P.-C.

Bleaching

Bleaching Hard Pulps. Lad. Rys. *Wochbl. Papierfabr.* 54, 2812 (Oct. 27, 1923). A method of operation is suggested by which the chlorine consumption of hard pulps is considerably reduced. Removal of the free SO_2 at the end of a cook encourages the formation of the calcium lignosulphonate and obviates the presence of the free lignin acid. This appears to result in a less chlorine consumption for hard pulp.—J. L. P.

Bleach Studies on Wood Pulpe—II. Carl G. Schwalbe and Hermann Wenzl. *Papierfabr.* 21, 385-388 (Aug. 19, 1923). The usual alkaline bleach with wood pulps, in which the temperature varies from 30 to 35° C., and through which a current of air is passed to remove the carbon dioxide formed, has many advantages over the processes in which acid is added to the bath. A better pulp is obtained, the yield is higher and a shorter time is required. In the cold, an acid bleach may be used and is more rapid than the cold alkaline process. The shorter the duration of the bleaching process and the less the pulp is subjected to the hydrolyzing action of the liquor, the greater is the yield and the better is the quality of the pulp produced. Acidification with very dilute mineral acid, using a maximum concentration of 0.1%, followed by a thorough washing of the bleached material is the best means of avoiding the yellowing effect due to traces of bleach liquor often remaining. It was found best to add the acid very gradually to the bleach bath, in such a way that the effect of each addition would be completed before the next one begins. In general the copper number was somewhat higher and the yield lower with pulps bleached in an acid bath.—J. L. P.

Continuous Bleaching of Pulp. Paul Souchon. Fr. pat. 558,867. Stock and bleach liquor are continuously and automatically fed in suitable proportion into a trough where they are circulated, and the stock passes continuously to a second trough in which acid is added to liberate the chlorine. The pulp then passes successively through three or more similar troughs in which water circulates in the opposite direction. The water is passed through from one washing trough to the next by means of washing drums.—A.P.-C.

Preparation of Bleaching Liquors. James H. MacMahon. *Paper* 32, No. 24, 7-8 (Oct. 3, 1923); *Paper Ind.* 5, 1105-1113 (Oct. 1923). A description of the Mathieson system for preparing bleach liquors from liquid chlorine. See *Pulp & Paper.* 21, 14, Jan. 4, 1923; *Paper Trade J.* 76, No. 1, 60, Jan. 4, 1923.—A. P.-C.

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Conducted by THOS. J. BURKE, C.A., Sec-Treas

"SOME PROBLEMS IN THE INSTALLATION OF ACCOUNTING SYSTEMS"*

By William A. Ullrich.

Perhaps it was on that memorable Christmas eve, about a century ago, when Mr. Fezziwig, in Dickens' "Christmas Carol" closed his account book with a bang, and climbed down from his high stool, that the first rumblings of the storm were heard.

Certain it is that for many years Mr. Business Man knew that a storm was brewing, but he did little to prepare for it. Several years ago the storm broke, and by the lightning flashes of the federal income-tax law Mr. Business Man saw the shaky condition of his financial house. During these years the accounting chaos of one business concern after another has been revealed by these flashes.

Sometimes the lightning has struck, to slightly either injure or even to annihilate, and among the shattered fragments of his financial house the twentieth-century Mr. Scrooge has called lustily for the only help in sight, Mr. Accountant.

Mr. Accountant, soaring in his airplane called "Improved Accounting Methods," has heeded the S. O. S. and is gradually lifting the unfortunate business man out of the ruins to rise with him into the pure air of accurate accounting methods.

While the keeping of records and the science of accounting is undoubtedly as old as civilization itself, double-entry bookkeeping was not used until about the time Columbus discovered America. Organizations of accountants have been in existence for a little more than fifty years, but it is less than a quarter of a century that the real value of accurate accounting methods has been recognized. The development of these methods has resulted largely from the deliberations and discussions of accounting organizations, chief of which is the American Institute of Accountants.

This subject, "Some Problems in the Installation of Accounting Systems," is a large one, and since the time is limited, we shall try to keep in mind Josh Billings' remark, when he said he did not care how much a man said, so long as he said it in a few words.

To make a list of perplexing questions is not our chief concern, but to make a satisfactory settlement of these problems is the task constantly before the practicing accountant, and if this paper presents any ideas that will even provoke constructive criticism, it will have achieved a measure of its purpose.

What "System" Really Means

Perhaps a definition of the word "system" will enable us to get a clearer understanding of our subject, and correct the ambiguous use of the term.

"System" is defined as the orderly combination or arrangement of parts or elements into a whole; the complete exhibition of essential principles or facts arranged in a rational dependence or connection. A careful reading of this definition shows that the word "system" is often misused, as it is sometimes applied to a simple method or mode of doing some one thing, such as a method of posting.

When an adding or typewriting machine representative says to his prospective buyer: "If you buy my system, you will not need an accountant," he is confusing a method with a set of principles. His machine may post the accounts in the manner for which it was designed, but in doing this it certainly does not furnish the user with an accounting plan and practice which takes into consideration the whole of his business. No doubt the improper use of the term "system," as applied to these incomplete methods, has been the cause of much of the criticism of all systems. On account of this indiscriminate use of the word "system," I prefer Mr. Scovell's term, "Accounting Plan and Practice."

There are so many phases to the successful management of a business and so much information that an accounting system should show, that even when we consider the best systems, we feel that they have but scratched the surface.

One of the first problems which presents itself is the personnel and policy of the management. In commenting upon the success of some man in his profession and the failure of others, a prominent industrial engineer stated that "if the directing heads of the firm possess no executive ability, you need not try to install better methods by beginning on the office boy."

It has been my privilege to observe the installation of a large number of accounting systems, and this experience has led me to believe that there are some men whom the best accounting plan can not help. They are not interested in improved methods, and will not be governed in their policy of management by results shown through the introduction of these methods.

I have in mind a corporation that decided to have a general accounting and cost system installed. This concern was established in 1854 and had such a reputation for good work that it received many contracts without naming a price in advance. When the completed cost of an individual contract or job did not agree with their estimate, they would say, "To hell with the cost system," and continue their old methods. The final result was a receivership and the dissolution of the corporation.

*From *Journal of Accountancy.*

A problem of primary importance to the accountant is to awaken the interest of the management to a change in policy when new methods show their old course to be wrong.

Jim Crow says: "Don't try to teach an old dog new tricks; get a new dog." While we should often like to get a new dog, it is sometimes necessary to continue working with the old dog.

When Harrington Emerson, the well-known industrial engineer, was addressing a meeting of business men in Detroit, someone asked him, "Do you not have trouble with labor in the installation of your methods?" He replied, "No, my trouble is with the management, who wants results yesterday."

Cannot Be Done in a Minute

The management must be convinced that it takes time to develop a correct accounting system. It can not be done in a day, a week, or a month. In addition to the new plans and instructions which the accountant may give, it requires continued effort on the part of the organization for which he is working to develop an adequate system. Like getting an education, there is more work required on the part of the student than on the part of the teacher. Too many system installations are made with the management thinking the accountant waves a magic wand which will produce wonderful results without any effort on the part of themselves or their organization.

In this connection we must also solve the problem of handling other persons of the organization. We have sometimes an allwise bookkeeper or egotistical cost accountant who does not believe in new methods, except possibly his own.

Not only may we have to meet the objections of these individuals, but there are differences in the qualifications of the personnel, and while one may readily grasp a new plan, another may not, and it will require more patient teaching thoroughly to instruct the latter.

We have met some employees who seemed to have the ability that foreman Pat on the railway gave Mike credit for having when he said to him: "Here, Mike, put down that wheelbarrow and take up this shovel; what do you know about machinery anyhow?" Oftentimes, however, when such persons are trained, they become interested workers and boosters for the new régime.

The accountant's success depends largely on his ability to "sell" his ideas to the management, than to those who handle the details, and to keep them "sold" until his installation proves its own worth.

Not only should he be well informed, but he should know how to handle men and how tactfully to teach others. This requires the exercise of patience and all of the other virtues that St. Paul names.

It is the work of the accountant to analyze and classify. "Analysis" means the minute or critical examination of anything complex, for the purpose of separating it into its constituent parts. The ultimate aim of any accounting plan and practice is that the business for which it is designed shall be more successfully and profitably conducted.

Therefore, it is of primary importance that we get an adequate conception of the problems involved and the factors to be considered. Too often a hurried consideration of these problems has been the cause of the failure of a system installation.

The solution of these problems may best be approached through the means of a careful examination and if possible a complete audit of the books and records.

This examination should cover selling, financial and manufacturing policies of the business. This may mean an investigation of marketing possibilities, methods of distribution of product, credit-granting, financing, etc., while the audit of the books and records would reveal the adequacy or inadequacy of the methods of accounting in use; the statistics which are being gathered for managerial uses; the analysis shown by the existing accounts; the completeness and accuracy of the accounts of the balance-sheet, such as valuation of inventories, equipment and other asset accounts; whether the liabilities are fully stated and proper reserves set up for depreciation.

This means that all of the asset and liability-accounts carried into the new accounting plan would be verified. At the same time, this examination would show the inadequacy of the cost accounting, if the client is carrying on a manufacturing business.

If a new, modern, general accounting plan is installed while an antiquated cost system is allowed to continue its worthless course, we have a combination like hitching Papyrus or Zev to the one-hoss shay.

This examination will assist us in determining how much detail we shall arrange for in the beginning of our installation, and whether or not we have enough competent help to handle the records. Some executives seem to think that records should be compiled without clerical effort, and that anyone can keep a set of books; as the Milwaukee man who said to me: "We can get a girl to keep our books after we get your system, can't we?" I replied: "We can furnish the system, but you must employ a competent bookkeeper."

Gradual Adoption of System

Here, again, we learn that it is often best not to attempt to install the complete system at one time. Especially is this true if we have employees who are not well qualified to take up the work, or if we are working for a client who has had little or no system.

A complete system may be too much for all of the organization to learn or absorb at one time, and they will become discouraged and say that they can never do the work required. Especially may this occur where a cost-accounting plan is involved.

If the general accounting plan is first installed and used long enough to run smoothly, we can then add new methods without tendency toward confusion, with the result that soon the entire plan so installed is working more satisfactorily than the old. Many times under this plan have we heard the expression, "We would not go back to our old system for any money."

This is an important problem and should be given very careful consideration.

When we make a study of manufacturing, our problems multiply, since there are more factors to consider, as those concerning:

First—Planning; which takes into account the quantity and kind of produce to be manufactured.

Second—Production; the detailed manufacturing processes. Under this head we include men, materials, machinery and methods.

Third—Cost accounting; records measuring the results of our planning and production methods, including also the detailing and classification of our manufacturing accounts in a logical manner, so that they may be used for purposes of budgeting, establishing controls, and compiling standard burden rates.

The subject of the classification of manufacturing accounts is a problem in itself, especially if we are planning a system for the several plants of a given industry for the purpose of getting uniformity of costs.

Some may say that planning, production and costing lie in the field of industrial engineering, but my observation has been that the work of some industrial engineers has resulted only in the installation of a useless cost system. It is the function of the accountant to analyze and classify, and as cost accounting requires this ability, then why should not the accountant outline the cost system? Especially is this true when we consider that to be of the most value, all cost accounting must be tied in with the general books.

The results of all manufacturing and commercial effort must be measured and recorded in accounting terms. Without a correct accounting of the results of such effort, we are unable to gauge the efficiency of our factors of production and to establish standards showing comparisons of these results. It is the work of the industrial engineer to evolve the best method for handling a process or doing a certain thing, but it is certainly the province of accounting to measure and record the results of these efforts.

Mr. Jordan tells us that "the credit for slowly but surely forcing the issue of cost accounting, belongs to the accounting profession." This statement comes from an industrial engineer, and I believe it is true, then why should not the accountant fortify himself with sufficient practical and mechanical knowledge to do the work which rightfully belongs to his profession?

Illustrating Certain Problems

To illustrate some of the foregoing problems, let us cite one or two instances from our experience in system installation:

In 1917 we were engaged to install a complete accounting plan for an old-established corporation. One of our preliminary recommendations was that an appraisal be made of the entire plant. The books showed but one account for buildings, machinery and equipment, and it was impossible to make a satisfactory analysis of this account. This appraisal was completed in May, 1917, and before it was delivered in June, a fire destroyed about half of the plant.

We found in use here the customary cash journal of twelve or fifteen columns, and the majority of expenses classified as "general." We began the installation with a simple general accounting plan which provided for the classification of equipment accounts, analysis of expenses and the adjustment of the fire loss.

After the new factory buildings were completed, we were requested to outline a cost-accounting plan. By this time we were well acquainted with the personnel of the company and knew some of their whims and shortcomings.

An examination of the factory proved that they did not have adequate manufacturing methods. Parts were being made or machined without drawings or specifications, resulting in such losses as the bursting of fly-wheels when pinions were pressed into their centers. Parts were processed without careful investigation as to what machine could best perform the operation or as to the amount of work any one machine could do. Assemblies were made in a hit-and-miss fashion, so that orders were filled in a like manner, and not after any well-laid plan of production. We convinced the management that under such conditions it would be of little use to compute costs, as the thing necessary to reduce costs was improved methods of production.

We then outlined in detail simple planning and production methods to meet their needs. After much labor, these plans were put into operation and a man was employed to take charge of production. In less than two years, with even these incomplete methods, their production was tripled, without any increase in equipment and very little additional labor. This was reflected in an increased ratio of profits, year after year.

During this prosperous time, a large addition to the factory was made, which later proved to be an over-expansion. The president of the company authorized this addition of new buildings against the advice of other directors. Last year he passed away and the business is now under other management. We are still assisting this concern in solving its new problems, and there has never been any question in the minds of the officers of this company as to the value of accounting services.

Another illustration is that of a manufacturing corporation formed some twenty years ago by four men, each holding an equal number of shares of stock. One of these men was sales manager, another office manager, another bookkeeper, while the fourth was superintendent of the factory.

Each of these men worked very hard in his own department to make it a success. The business prospered and a few years ago three of these men decided to retire from active work, selling a portion of their stock to a younger man, who was made general manager. Upon coming into the business, this man found that although these four men were hard workers, they had not planned for and built an organization, so that when any one of them was absent from his department, there was no directing head.

Many of their methods of handling details in the office, the factory and the shipping-room, were as incomplete as their organization, and factory costs were figured by adding a lump sum of 20 per cent to estimated material and labor costs. In handling this engagement, we made a careful examination of all of their methods and installed a general accounting system, which included a detailed analysis of manufacturing accounts for the purpose of establishing standards for our burden rates. The cost system was not installed until fifteen months later.

This procedure meant that the general accounting plan was running smoothly and that it furnished correct data for the establishment of standard burden rates for machines and departments. In addition, the office, order, and sales departments, as well as factory organization, were built up so that when it came time for the installation of manufacturing costs, it was only necessary to get additional cost-accounting details.

In this case we get all of our labor distribution from the Stromberg Cost Recorders, thus saving much clerical effort, and all the costs necessary for the intelligent pricing of the product are gathered in the purchasing department with a minimum clerical effort.

This plan gives full information regarding the operation of machines and other equipment, the hours run, cost of repairs, etc. The management says their company has all of the methods and gets more information than some other plants in the same industry which have much more elaborate cost systems.

In this paper I have made no attempt to discuss questions of principle or to establish any hard and fast rules of procedure. The problems mentioned show how the ingenuity of the accountant is taxed to find new ways to solve the many difficulties which present themselves.

Often the success of the system installation depends upon the judgment exercised by the accountant in deciding these questions; therefore a very careful study should be made of all the problems involved before any decisions are reached.

This is the work of the accountant at its highest development; it deals with mathematics, economics and problems of human nature. It is an interesting vocation for the man who loves his work, because he is helping his fellows to make two blades of grass grow where one grew before, and to eliminate some of the needless waste that is a burden on the business of this country.

Federal Taxes 1921 Losses

Under the Federal Revenue law a net loss as defined under the act incurred in the year 1921, may be deducted from the taxpayer's net income for 1922, and if such net loss is in excess of the net income for 1922, the amount of this excess may be deducted from the net income for 1923. All deductions must be made under the regulations prescribed by the Commissioner of Internal Revenue. In those cases therefore, where the profits of 1922 were less than the loss in 1921, the difference may be deducted from the 1923 profits.

It should be noted that the term "net loss" as used in the statute, means only a net loss resulting from the operation during the taxable year, of any business carried on regularly by the taxpayer, although included therein may be loss from the sale or other disposition of real estate and machinery, also other assets used in conducting of such business.

The taxpayer must have suffered an actual net loss during the taxable year, in order to be entitled to claim an allowance.

Paper Laboratory Experiments

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., March 12, 1924.—The Paper Laboratory of the Bureau of Standards has made ten additional machine runs during the past month in order to obtain more information concerning the selection of paper stock and clay as well as the elimination of foaming of raw coating mixture, which causes pinholes. Some progress was made in connection with laboratory tests to determine the waterproof quality of the coating.

"INDIRECT LABOR" *

By Harry J. Ostlund, Univ. of Minnesota, Minneapolis, Minn.

Perhaps there is no other single item watched as carefully by a manufacturer as is labor. In many plants it is the largest single item; also in many cases it is the item least standardized. Its quality is not uniform, varying greatly from time to time and place to place, depending on the condition of the labor market; so that a day's work does not by any means represent the same thing at all times. Any means, therefore, by which a manufacturer can bring labor more fully under his administrative control is to be welcomed and tested for its merits.

Of all the labor control problems that a manager must face in his plant, perhaps that of adequate control of his indirect labor is the most perplexing. It appears from a general view of the situation as we find it in many manufacturing plants that one of the first things that is necessary is to get the problem out into the light where we can get a square look at it and then to study its fundamentals with a view to discovering what we can of the general principles that may be applied. After that comes the specific, and not by any means always the easiest, part of the task, namely, that of applying these general principles to the actual complex of conditions that are to be found in the given case.

Meaning of Indirect Labor

Perhaps, however, we should attempt to define just what we mean by the terms direct labor and indirect labor. There are two bases for making the distinction between the terms. The first is what may be called the physical basis. That is, direct labor is that which is applied physically directly to the product itself either by hand or through the operation of a machine which is being used on the product. Indirect labor then becomes all that labor in a factory which is not physically applied directly to the product. This includes superintendents, foremen, clerical assistants, sweepers in productive departments, and all help of whatever sort in the auxiliary or service departments.

However, it is soon found that for cost purposes the above distinction is not wholly adequate, since there is much labor directly applied to the product, even in plants working on the order system, which, however, cannot be practically so charged. Instances of this sort are labor directly performed on several short or small jobs, tasks requiring only a touch on each job on the part of the laborer, operations where the handling of the work is such that orders need not be identified as the work is performed. Here, though the labor may be physically direct, it becomes expedient to charge it indirectly. Hence there is the second basis for distinction between direct and indirect labor, namely, this: direct labor is that which is directly charged against specific lots or units of the product, while indirect labor is that which is not directly so charged. It will be perceived, therefore, that this is the only definition that is practicable for costing purposes since the other, important as it may be as a managerial distinction, cannot be expressed fully and practically in terms of costs. It remains to be stated, however, that the proportion of physically direct labor in any one plant that cannot be directly charged is probably usually small and of such a nature that its disposition will not be deeply hidden from view.

It is also understood that in this article we are dealing, unless mention is made to the contrary, only with indirect labor as carried on in connection with the productive functions of a business and excluding administrative and selling labor.

Indirect Labor Should Not be Unproductive

We can now make one other statement concerning terminology. Sometimes direct and indirect labor are called respectively productive and non-productive labor; and, in the minds of some, the latter term has come to mean unproductive. So far as this use of terms may have led to erroneous concepts, it is unfortunate. But if the statements made earlier are true, namely that the development of industrial technique has led to a larger proportion of indirect labor in industry, then it would appear that indirect labor is perhaps really not so unproductive after all. In fact the increased use of machinery and the new administrative tools of management have resulted in making the net productiveness of the labor force, direct and indirect together, greater than when the percentage of direct labor was higher than it is now. Many a concern has found its net productivity per laborer increased as a result of no other change than the addition of some more indirect labor in the form of storekeeper, a planning department, cost clerks, internal transportation help, and others that might be mentioned, thus facilitating the work of the direct laborers or leaving them free to apply all of their time to their immediate tasks and relieving them of such other tasks as keeping their own time, looking after their own tools, getting their own supplies and the like.

It is interesting to note that as the technique of production has been developed through the last century, indirect labor has come to play an increasingly important part in manufacture. The simpler methods of production in the past consisted almost entirely of labor applied directly to the product, while as machinery has come to play a more predominant part in industry, more and more of the former direct workers have been called upon to perform the various services that are necessary in order to facilitate the work of those who are directly employed upon the product. Furthermore, as a plant becomes more and more highly organized and specialization develops among its workers, the more necessary are the services of auxiliary departments for the maintenance of plant, handling of stores, accounting for time and production, inspection, and the like.

Normal Ratios Tend to Develop

It is true, however, that in any particular plant in which routines and methods have been pretty well established, there is a tendency for normal proportions to be established between direct labor and indirect labor. This observed fact has led many manufacturers to place a great deal of emphasis on the maintenance of the ratio, any departure, especially in the way of increased indirect labor being regarded as unfavorable. But this significance should not be over emphasized as an indicator by itself. An increase in the proportion of indirect labor cost may be altogether favorable; especially is this true if in the case of direct labor working under a bonus system, the efficiency should be increased, when of course the added bonus would appear, under accounting methods used by most concerns, as an addition to the indirect labor cost. Then also as pointed out above any substantial improvement in processes or methods is likely to change the ratio by increasing indirect labor relatively. In other words, the fact that there is change in the ratio of indirect labor to direct labor means very little if anything until the cause for that ratio be shown to determine whether the change is detrimental or beneficial.

On the other hand it is also true that under some conditions an increase in this ratio may represent a situation that should be remedied if possible. Particularly is this true when a plant is running below normal capacity. Direct labor is frequently the easiest to drop. Service departments have to be run anyway. Most of the clerical force and practically all of the supervision must be kept even under low capacity operation. All of this tends to increase the ratio of indirect labor to direct labor and it may in such cases become a fairly reliable index of inefficiency due to low capacity operation.

Indirect Labor Needs Careful Scrutiny

There are several reasons, however, why indirect labor should be given special attention by the plant manager. In the first place

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it does not stand out alone in the final reports as a separate item but appears as a part of that complex composite known as burden. Even when it does have a place in the departmental expense and burden reports, the item for each department frequently so lacks the element of homogeneity as to impair greatly its use as an index of efficient control.

In the second place indirect labor is largely unstandardized. That is to say in most cases there is no means of saying just what performance ought to be since often it is difficult to measure performance at all. An example of this is repair and maintenance labor working at odd jobs about the plant—perhaps no two jobs alike or performed under like conditions.

Growing out of these circumstances of lack of standardization and complexity of treatment there has resulted a condition for which management is largely to blame, namely, that almost the only attention given to indirect labor in many shops is to the aggregate rather than to the types of service it performs. Consequently, many indirect departments are woefully inefficient, in spite of the fact that management is trying to "hold down the percentage."

Forms That Indirect Labor May Take

Any service that the cost department can render in the control of indirect labor must be based upon the proper analysis of it and upon a recognition of the vast variety of different forms that it may take. Accepting the definition that indirect labor includes all labor that is not charged directly to individual units or lots of the product, we may include nearly all direct labor in one of the following groups, some of which have already been incidentally mentioned.

There are two general forms of indirect labor charges. The first is where all the pay of the laborer for the given period is made an indirect labor charge, and the second is where the worker's pay for a given time is divided between direct and indirect costs.

Taking the first general class of indirect charges we have first foremen, time and dispatch clerks, sweepers, and other workers in manufacturing departments whose efforts are not applied directly to the product.

There is also labor applied directly to the product but applied in such a way as to make its direct charging impracticable, such as work on a series of small lots, or in departments where various lots or orders cannot profitably be distinguished as might happen in the dipping room of a paint shop where identity of orders makes little difference so long as the parts are dipped in the right tank. The same is true later while the goods are handled in the drying or baking ovens.

Then there is all labor in the various service or auxiliary departments of a plant, such as power, store room, planning department, general factory office and others.

In the case of plants using process systems all the labor is treated as indirect so far as concerns its manner of charging; that is to say, little attempt is made in analyzing departmental costs to distinguish between the different ways in which the labor is used.

Idle Time Should Be Watched

Perhaps one of the most important of the indirect labor items to watch in many shops is that of idle time of laborers, direct and indirect. It is not always that work can be planned and expedited in such a way that no workman will ever have to wait for something to do. Delayed tools or materials, breakdowns, lack of instructions, and many other things frequently cause longer or shorter delays during which workmen, through no fault of their own, have to be idle. If such items are at all considerable, it is evident that they should be charged to a departmental idle time account so that they can be properly watched and analyzed for the purpose of study and possible elimination.

Then there are the numerous cases where a part of the total wage paid direct workers becomes an indirect labor charge. This is generally the situation under various bonus and premium plans of wage payment where it is found expedient to charge the product at a standard rate for labor and to charge the premium to the departmental burden account on the theory that the effect of the bonus is to reduce the burden cost per unit of the product, and that therefore it is properly an offset against this reduction.

Similar to the above is a group bonus paid in cases where it is difficult or impracticable to calculate individual bonuses. Such bonuses frequently apply to the foreman also.

Another element of labor cost chargeable to burden under some circumstances is extra pay for overtime on the part of direct workers. Without attempting to treat this case exhaustively, it may be said that if the overtime work is caused by a general rush of orders and if it is only temporary, the extra overtime pay can properly become a burden charge, whereas if overtime is worked in order to put out a particular rush order, the total cost of direct labor applied can very properly be charged to that order. In any case the final decision as to treatment of the charge would require a consideration of how other burden charges involved are to be treated, but this subject is a little beyond the scope of the present article.

Frequently, it becomes necessary to charge to burden a part of the wages of a worker who has been transferred temporarily from one department or line of work to another in which the rate of pay is lower than that drawn by the worker so transferred. It is frequently a question as to where this differential charge is to be placed, whether in the department whence the help came, the one to which it was transferred or to the general factory burden. We need not refer to all the possible cases that might arise, each requiring its own peculiar solution, any further than to say that under those circumstances where it is simply a matter of keeping laborers employed during a slack period the charge should be made to general overhead. When the transfer is due to a temporary but urgent demand from the department using the help, the charge can well be made to that department's overhead directly, while if the transfer is necessitated by some disorganization in the department where the workers belong, it should itself bear all the burden cost that is occasioned.

Often also a situation arises where new workers who will eventually go on a piece rate are guaranteed a minimum day rate in those cases where the output of the worker is not sufficient at the piece rate to cover his guaranteed wage, it is customary to charge the difference to a burden account.

Other instances of indirect labor charges might easily be found, but these are sufficient to illustrate the varied phases of the problem and to indicate how inadequate must be the attempt to control indirect labor as if it were a homogeneous whole.

Control Paramount to Mere Costing

It must be clear by this time that the major problem of the plant manager, so far as his indirect labor is concerned, is that of its adequate control. This problem is paramount to that of mere costing. In fact it is the writer's opinion that if a good control system is established in the plant, reasonably correct unit costs will follow as a natural result—while a system that merely gives unit costs as its primary object does not necessarily provide an adequate means of managerial control.

We are thus confronted with the whole problem of standards of performance and records by means of which to check that performance.

As mentioned before, indirect labor does not readily lend itself to standardization of its performance. It is difficult to express it in terms of output. Examples of this difficulty are manifold. What definite unit standards of output can be assigned to the maintenance department, or to the stores department as to some of the clerical help, or to many foremen? It is next to impossible so far as individuals are concerned, and more particularly is this true in the small plant where division of labor and the consequent stand-

(*Continued on page 66*)

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Packing paper .....7,134 rolls, 1,615 bls., 29 cs.
Wrapping paper .....831 rolls, 11 cs., 232 bls.
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Whiting & Patterson, Thuringia, Hamburg, 2 cases.
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Japan Paper Co., by same, 2 cases.
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Guaranty Trust Co., Chicago, Havre, 630 bls. rags.
Goldman, Sachs & Co., by same, 220 bls. rags.
E. J. Keller Co., Inc., by same, 129 bls. bagging.
Chase National Bank, by same, 39 bls. rags.
E. J. Keller Co., Inc., Thuringia, Hamburg, 354 bls. rags.
E. J. Keller Co., Inc., by same, 102 bls. jute waste.
E. J. Keller Co., Inc., by same, 64 bls. bagging.
E. J. Keller Co., Inc., America, Bremen, 172 bls. rags.
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Goldman, Sachs & Co., by same, 310 bls. rags.
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(*Continued on page 66*)

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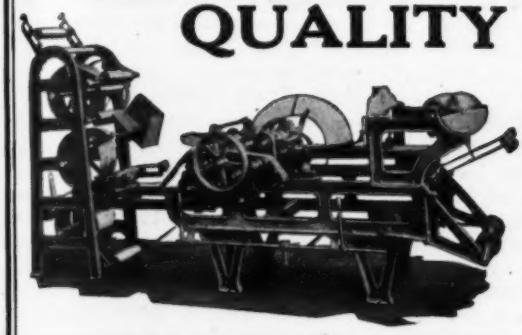

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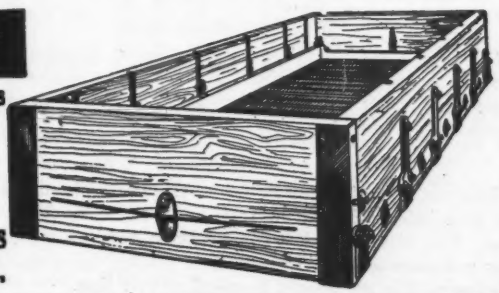

New York Market Review

OFFICE OF THE PAPER TRADE JOURNAL,
WEDNESDAY, MARCH 12, 1924.

There has been practically no change in the general situation in the paper market during the past week. So far as market and price conditions are concerned things have been moving at practically the same rate that they were last week.

Dealers report that there is a fair and growing demand for all sorts of paper and manufacturers say that there is every indication that the market is going to continue to improve. The mills are pretty generally busy and production is gradually approaching a satisfactorily large volume.

Fine papers are moving along at about the same rate of speed that they have been for the past few months with little change either in market conditions or in price. Dealers and manufacturers say that they are getting a fairly good business and that the demand is continuing fairly even in spite of influences that have been brought to bear to alter it.

Book paper is also reported to be in fairly good shape with a gradually growing demand and prices showing a tendency to remain very firm. There seems to be a hardy competition for orders in this field but buyers are moderately anxious to get in and the result is a business that approximates normal. Several large orders have moved through the open market during the past week and this has had a tendency to keep the price at just about the same level.

News print is still very firm with a good demand reported on all sides. The publishers are coming into the market strongly and so far as the local field is concerned the recent merger of two metropolitan newspapers seems to have had little effect. People are consuming just as much newspaper as they have been with the difference that the orders are perhaps a little more widely distributed than they were before.

Kraft paper has shown a distinct tendency to improve and manufacturers seem to be fairly cheerful about the immediate future. The removal of the Norwegian mills from competition with them may have had something to do with this, but there are other elements which also enter into the situation, chief among them probably the fact that buying appears to have returned to normal once more.

Mechanical Pulp

While there has been some slackening off in the demand for mechanical pulp dealers hardly expected that they would be so fortunate as to enjoy indefinitely the remarkably good demand they had for some time. The price is reported to be a little softer in the low ranges.

Chemical Pulp

A better demand for the chemical pulps has pervaded the market during the past week. Prices have been a good deal firmer although a few distressed lots have tended to keep the low range down a trifle. Dealers report that this branch of the industry is in better shape than it has been for some time.

Old Rope and Bagging

Old rope is not in quite so good demand as it was a little while ago, but at the same time there is a fairly good business in it for those who choose to make concessions to get it. Bagging is in practically the same condition as rope.

Rags

Rags are also a little off so far as the demand is concerned with the price holding firm at the same level that it has been for some time. Ever since the infant boom business has been much better in rags and there seems to be nothing to indicate that this commodity is going to lose the ground it gained at that time.

Waste Paper

Waste paper is also a little more slow than it was and some of the higher grades are not moving so well as they might. Prices remain just about the same.

Current Paper Trade Literature

Newfoundland Conifers and Their Properties. Frederick Barnes. *Pulp & Paper* 21, 1257-1260 (Dec. 27, 1923). Results are given for 19 samples of bastard spruce, white spruce, black spruce, and balsam fir, covering physical properties, chemical composition and pulping tests on a laboratory scale by the sulphite and groundwood processes; and these are compared with previously published results obtained with similar woods from eastern Canada. The author concludes that when used for sulphite, Newfoundland wood will give higher yields than mainland timbers per unit dry weight, longer fiber, and better color; when used for groundwood the Newfoundland woods will give greater gross production per hp. with greater ease in grinding, but the quality, though good, will probably not average as high as that from mainland wood. A small laboratory hand driven grinder is described. In the manufacture of both sulphite and groundwood it would be necessary to separate the species of wood to obtain good results.—A. P.-C.

Peat as a Raw Material for Paper. *Paper Ind.* 5, 1397-1398 (Dec., 1923). Brief sketch of the treatment of peat for the manufacture of paper.—A. P.-C.

Bleached Cotton Seed Lint Halfstuff. *Paper Mill* 47, No. 50, 38, 40 (Dec. 15, 1923). Cotton seed lint can be used for making all grades of paper where new cotton trimmings are used. As they contain a considerable quantity of that portion of the cotton fiber which is rooted in the shell of the seed, which portion has much thicker walls than the cotton fiber removed by the gin and used in textiles, lint fibers approximate to flax or linen fibers, and respond to beating in a similar way. In commercial operations lint stock from the same boil has been used to produce blotting paper weighing 38 lb. per demy ream and bulking nearly 7 in., and a strong "loan" similar in appearance and feel to that for which a very high grade rag would be used. Figures are given of tests on "bank," "ledger" and "hand made" papers manufactured commercially from lint stock.—A. P.-C.

Improvements in Fine Papermaking. I. Gordon. *Paper* 33, No. 7, 3-4, 20 (Dec. 6, 1923). Brief outline of recent refinements in manufacturing methods, which tend to improve the product and lower the cost.—A. P.-C.

Rejoins Whitaker Organization

[FROM OUR REGULAR CORRESPONDENT]

CINCINNATI, Ohio, March 10, 1924.—C. S. Mirick, who resigned from the Whitaker Paper Company several months ago to become Vice-President of The Culbertson Paper Company, has returned to the Whitaker forces and will specialize on the sale of high grade fine papers. Mr. Mirick is well known in the paper trade all over the country as he has spent over twenty years in the business. He was connected for a number of years with both Whiting & Cook, and the Whiting Paper Company, and his familiarity with these and other high grade mill lines makes him eminently fit for his new work.

Fine Paper Exhibit

[FROM OUR REGULAR CORRESPONDENT.]

PITTSBURGH, Pa., March 13, 1924.—The Chatfield & Woods Company is today having an exhibit of fine printing and paper at its offices. A buffet lunch will be served this afternoon and, in connection with the exhibit, the following program of interesting talks will be caried out: "Selling Sales with Direct Advertising," C. F. Norton, advertising manager of the Strathmore Paper Company; "The Use of Color," C. W. Dearden, sales promotion manager of the Strathmore Paper Company; "The Human Equation in Business," Alexander Dunbar, vice-president of the Bank of Pittsburgh.

Market Quotations

PAPER STOCK SECURITIES

New York Stock Exchange closing quotations March 11, 1924

	BID	ASKED
American Writing Paper Company, pref.	2	2¾
International Paper Company, com.	37½	38½
International Paper Company, pref. stamped	64	65
Union Bag & Paper Corporation	59	61½

Paper

F. o. b. Mill

Ledgers	11.00	@	38.00
Bonds	9.00	@	45.00
Writings—			
Extra Superfine	14.00	@	30.00
Superfine	14.00	@	30.00
Tub Sized	10.00	@	15.00
Engine Sized	8.00	@	11.00
News—f. o. b. Mill—			
Rolls, contract	3.75	@	4.00
Rolls, transit	3.75	@	4.25
Sheets	4.25	@	4.50
Side runs	3.50	@	4.15
Book, Cased—f. o. b. Mill—			
S. & S. C.	7.25	@	9.00
M. F.	7.10	@	8.85
Coated and Enamel	9.00	@	14.00
Lithograph	9.00	@	14.00
Tissues—f. o. b. Mill—			
White No. 1	.80	@	.90
White No. 2	.85	@	.95
Colored	1.15	@	2.00
Anti-Tarnish	1.50	@	2.00
Kraft	.95	@	1.15
Manila	.78	@	.85
Kraft—f. o. b. Mill—			
No. 1 Domestic	5.85	@	6.20
No. 2 Domestic	5.15	@	5.75
Imported	4.75	@	5.20
Manila—			
No. 1 Jute	7.50	@	9.00
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.75	@	5.25
No. 2 Wood	4.00	@	4.50
Butchers	4.25	@	4.75
Fibre Papers—			
No. 1 Fibre	5.50	@	5.75
No. 2 Fibre	5.00	@	5.25
Common Bogus	3.50	@	—
S. Screening	3.25	@	3.75
Card Middles	4.00	@	5.00
Boards—per ton—			
News	55.00	@	60.00
Straw	61.00	@	63.00
Chip	50.00	@	55.00
Binders' Boards	70.00	@	75.00
Sgl. Mla. Lt. Chips	65.00	@	75.00
Wood Pulp	70.00	@	75.00
Container	70.00	@	80.00
Sulphate Screenings—			
Coarse	.80	@	.90
Refined	1.75	@	2.00
Ground Wood—			
Screenings	20.00	@	25.00
Glassine—			
Bleached, basis 25 lbs.	12.00	@	15.00
Bleached, basis 20 lbs.	14.00	@	17.00

Mechanical Pulp

(Ex-Dock)

No. 1 Imported	28.00	@	34.00

(F. o. b. Mill)

No. 1 Domestic	28.00	@	34.00

Chemical Pulp

(Ex-Dock, Atlantic Ports)

Sulphite (Imported)—			
Bleached	3.95	@	4.50
Easy Bleaching	2.75	@	3.00
No. 1 strong unbleached	3.05	@	3.15
No. 2 strong unbleached	2.40	@	2.60
No. 1 Kraft	2.75	@	3.05
Sulphate—			
Bleached	3.90	@	4.00

(F. o. b. Pulp Mill)

Sulphite (Domestic)—			
Bleached	3.90	@	4.50
Easy Bleaching Sulphite	2.90	@	3.05
News Sulphite	2.50	@	2.80
Mitscherlich	2.90	@	3.00
Kraft (Domestic)	2.65	@	2.90
Soda Bleached	4.00	@	4.20

Domestic Rags

New

Prices to Mill, f. o. b. N. Y.

Shirt Cuttings—			
New White, No. 1	13.00	@	13.50
New White, No. 2	6.25	@	6.75
Silesias, No. 1	7.25	@	7.75
New Unbleached	10.50	@	11.00
Washables	5.26	@	6.15
Fancy	6.25	@	6.75
Blue Overall	7.15	@	8.15
New Blue	5.00	@	5.50
New Black Soft	4.65	@	5.15
New Light Seconds	2.75	@	3.00
O. D. Khaki Cuttings	4.04	@	4.15
Men's Corduroy	3.65	@	4.00
New Canvas	6.40	@	7.00
New Black Mixed	2.50	@	2.75
White, No. 1—			
Repacked	6.25	@	6.75
Miscellaneous	5.50	@	5.75
White, No. 2—			
Repacked	4.00	@	4.25
Miscellaneous	3.50	@	3.65
St. Soiled, White	2.80	@	3.00
Thirds and Blues—			
Repacked	3.00	@	3.25
Miscellaneous	2.35	@	2.45
Black Stockings	3.00	@	3.25
Roofing Rags—			
Cloth Strippings	2.30	@	2.40
No. 1	2.05	@	2.15
No. 2	1.25	@	1.35
No. 3	1.20	@	1.30
No. 4	1.20	@	1.30
No. 5A	1.50	@	1.60

Foreign Rags

New Light Silesias	7.00	@	7.75
Light Flannelettes	8.00	@	8.25
Unbl'chd Cottons	9.00	@	9.50
New White Cuttings	10.00	@	11.50
New Light Oxfords	7.25	@	7.75
New Light Prints	6.75	@	7.25
New Mixed Cuttings	2.50	@	2.75
New Dark Cuttings	2.00	@	2.25
No. 1 White Linens	9.00	@	10.00
No. 2 White Linens	7.00	@	8.00
No. 3 White Linens	6.00	@	6.50
No. 4 White Linens	4.00	@	5.00
Old Extra Light Prints	3.15	@	3.25
Ord. Light Prints	2.75	@	3.00
Med. Light Prints	2.40	@	2.50
Dutch Blue Cotton	3.25	@	3.50
German Blue Cottons	3.00	@	3.20
Ger. Blue Linens	3.00	@	3.25
Checks and Blues	2.00	@	2.15
Dark Cottons	2.00	@	2.10
Shoppery	1.75	@	1.85
French Blues	3.25	@	3.50

Bagging

Prices to Mill F. o. b. N. Y.

Gunny No. 1—			
Foreign	1.30	@	1.40
Domestic	1.20	@	1.30
Wool, Tares, light	1.30	@	1.40
Wool, Tares, heavy	1.40	@	1.50
Bright Bagging	1.10	@	1.20
Sound Bagging	.90	@	1.00
Manila Rope—			
Foreign	6.25	@	6.50
Domestic	6.50	@	6.75
New Bu. Cut	2.15	@	2.25
Hessian Juts Threads—			
Foreign	2.00	@	2.25
Domestic	2.00	@	2.10

Twines

Cotton—(F. o. b. Mill)—			
No. 1	.30	@	.38
No. 2	.29	@	.31
No. 3	.34	@	.36
India, No. 6 basis—			
Light	.17	@	.18
Dark	.16	@	.17
B. C., 18 basis	.41	@	.42
A. B. Italian, 18 Basis	.51	@	.61
Finished Jute—			
Dark, 18 basis	.29	@	.30
Light, 18 basis	.26	@	.27
Jute Wrapping, 3-6 Ply—			
No. 1	.20	@	.23
No. 2	.18	@	.20
Tube Rope—			
4-ply and larger	.15	@	.17
Fine Tube Yarn—			
5-ply and larger	.19	@	.21
4-ply	.20	@	.22
3-ply	.20	@	.22
Unfinished India—			
Basis	.16	@	.17
Paper Makers' Twine Balls	.09	@	.11
Box Twine, 2-3 ply	.14	@	.15
Jute Rope	.15	@	.16
Amer. Hemp, 6	.30	@	.32
Sisal Hay Rope—			
No. 1 Basis	.14	@	.16
No. 2 Basis	.10	@	.12
Sisal Lath Yarn—			
No. 1	.14	@	.15
No. 2	.11	@	.13
Manila Rope	.18	@	.19

Old Waste Papers

(F. o. b. New York)

Shavings—			
Hard, White, No. 1	4.05	@	4.15
Hard, White, No. 2	3.20	@	3.30
Soft, White, No. 1	3.10	@	3.30
Flat Stock—			
Stitches	1.70	@	1.80
Over Issue Mag.	1.70	@	1.80
Solid Flat Book	1.50	@	1.60
Crumbled No. 1	1.25	@	1.35
Solid Book Ledger	2.15	@	2.25
Ledger Stock	1.90	@	2.05
New B. B. Chips	.65	@	.80
Manilas—			
New Env. Cut	2.45	@	2.55
New Cut No. 1	1.75	@	2.00
Extra No. 1 old	1.30	@	1.40
Print	1.10	@	1.25
Container Board	.90	@	1.00
Bogus Wrapper	.90	@	1.00
Old Krafts Machine compressed bales	2.15	@	2.25
News—			
No. 1 White News	2.15	@	2.25
Strictly Overissue	1.15	@	1.25
Strictly Folded	.85	@	.95
No. 1 Mixed Paper	.70	@	.75
Common Paper	.50	@	.60

CHICAGO

[FROM OUR REGULAR CORRESPONDENT.]

Paper

F. o. b. Mill

All Rag Bond	35	@	40
No. 1 Rag Bond	30	@	35
No. 2 Rag Bond	14	@	25
Water Marked Sulphite	9	@	12
Sulphite Bond	7½	@	10¼
Sulphite Ledger	9½	@	12
Superfine Writing	18	@	24
No. 1 Fine Writing	14	@	18
No. 2 Fine Writing	12	@	14
No. 3 Fine Writing	9	@	12
No. 1 M. F. Book	5¼	@	7½
No. 1 S. & S. C. Book	6¼	@	7¾
Coated Book	8	@	10
Coated Label	8	@	10
News—Rolls, mill	3¾	@	4½
News—Sheets, mill	4	@	4¼
No. 1 Manila	5	@	6
No. 1 Fibre	5½	@	5¾
No. 2 Manila	4¼	@	5
Butchers' Manila	4½	@	
No. 1 Kraft	6¼	@	6½
No. 2 Kraft	5¾	@	6¼
Wood Tag Boards	4½	@	6
Screenings	2¾	@	3
Boards, per ton—			
Plain Chip	$50.00	@	52.50
Solid news	52.50	@	55.00
Manila Line Chip	60.00	@	62.50
Container Lined—			
85 Test	65.00	@	70.00
100 Test	70.00	@	75.00

Old Papers

F. o. b Chicago

Shavings—			
No. 1 Hard White	3.25	@	3.35
No. 1 Soft Shav.	2.75	@	2.85
No. 1 Mixed	1.25	@	1.35
No. 2 Mixed	1.15	@	1.25
White Envel. Cuttings	3.40	@	3.50
Ledgers and Writings	1.65	@	1.75
Solid Books	1.60	@	1.70
No. 1 Books, Light	1.40	@	1.50
Blanks	2.25	@	2.35
Ex. No. 1 Manila	2.35	@	2.45
Manila Envelope Cuttings	2.45	@	2.50
No. 1 Manilas	1.30	@	1.35
Folded News (over issue)	1.20	@	1.25
Old Newspaper	1.00	@	—
Mixed Papers—			
No. 1	.85	@	.90
No. 2	.80	@	.85
Straw Clippings	.90	@	1.00
Binders' Clippings	1.10	@	—
Kraft	2.20	@	2.30
New Kraft Cuts	2.50	@	—
Roofing Stock, f. o. b. Chicago, Net Cash—			
No. 1	44.00	@	—
No. 2	42.00	@	—
No. 3	40.00	@	—
No. 4	40.00	@	—

PHILADELPHIA

[FROM OUR REGULAR CORRESPONDENT.]

Paper

Bonds	.10	@	.60
Ledgers	.15	@	.40
Writings—			
Superfine	.15	@	.20
Extra fine	.12	@	.22
Fine	.20	@	.30
Fine, No. 2	.20	@	.25
Fine, No. 3	.15	@	.20
Book, M. F.	.06	@	.11
Book, S. S. & C.	.08	@	.15
Book, Coated	.08	@	.15
Coated Lithograph	.10	@	.15
Label	.08	@	.15
News	.05	@	.07
No. 1 Jute Manila	.12	@	.13
Manila Sul., No. 1	.08	@	.10
Manila No. 2	.07½	@	.08
No. 2 Kraft	—	@	.10
No. 1 Kraft	—	@	.11
Common Bogus	.02½	@	.03
Straw Board	75.00	@	85.00
News Board	65.00	@	70.00
Chip Board	62.50	@	67.00
Wood Pulp Board	1.25	@	1.50
(Carload Lots)			
Binder Boards—			
Per ton	75.00	@	80.00
Carload lots	75.00	@	80.00
Tarred Felts—			
Regular	48.00	@	50.00
Slaters	54.00	@	56.00
Best Tarred, 1-ply (per roll)	1.35	@	1.50
Best Tarred, 2-ply (per roll)	1.00	@	1.15
Best Tarred, 3-ply	1.50	@	1.65

Bagging

F. o. b. Phila.

Gunny No. 1—			
Foreign	1.25	@	—
Domestic	1.20	@	1.25
Manila Rope	5.00	@	6.00
Sisal Rope	.75	@	.80
Mixed Rope	.75	@	.80
Scrap Burlaps	1.00	@	1.25
Wool Tares, heavy	2.50	@	2.75
Mixed Strings	.75	@	.80
No. 1, New Lt. Burlap	1.75	@	2.00
New Burlap Cuttings	1.75	@	2.10

Old Papers

F. o. b. Phila.

Shavings—			
No. 1, Hard White	4.25	@	4.40
No. 2, Hard White	3.50	@	3.75
No. 1 Soft White	3.25	@	3.50
No. 2 Soft White	2.15	@	2.25

(Continued on page 68)

Imports and Exports of Paper and Paper Stock

(*Continued from page 62*)

Johaneson, Wales & Sparre, Inc., Trolleholm, Gothenburg, 1,625 bls. sulphate pulp.
Hubles, Corning & Co., Gustavsholm, Gothenburg, 6 bls. paper.
H. Reeve Angel & Co., Inc., by same, 4 bls. paper.
H. Reeve Angel & Co., Inc., by same, 3,118 rolls paper.
The Borregaard Co., by same, 750 bls wood pulp.
Scandinavian Pulp Agency, Inc., by same, 1,397 bls. sulphite pulp.
Woodpulp Trading Co., Ltd., by same, 500 bls. sulphite pulp.
Parsons & Whittemore, by same, 2,225 bls. sulphite pulp.
R. F. Hammond, Inc., by same, 2,000 bls., 400 tons sulphite pulp.
R. F. Hammond, Inc., Trolleholm, Gothenburg, 2,500 bls, 500 tons wood pulp.
Castle & Overton, Sac City, Rotterdam, 510 bls. wood pulp.

NORFOLK IMPORTS

WEEK ENDING MARCH 8, 1924.

Castle & Overton, Sac City, Rotterdam, 253 bls. wood pulp.

PORTLAND, MAINE, IMPORTS

WEEK ENDING MARCH 8, 1924.

Woodpulp Trading Co., Ltd., Arkansas, ——— 8,712 bls. mechanical pulp.

NEW ORLEANS IMPORTS

WEEK ENDING MARCH 8, 1924.

Lagerloef Trading Company, Saguache, 93 bls., 15 tons wood pulp.
Castle & Overton, Dakarian, London, 167 bls. waste paper.
Castle & Overton, Evergreen, Hamburg, 213 bls. rags.

PHILADELPHIA IMPORTS

WEEK ENDING MARCH 8, 1924.

Republic Bag & Paper Co., Eastern Victor, Rotterdam, 911 bls. packing paper.
Market St. National Bank, Aden Maru, Hamburg, 2,097 bls. wrapping paper.
Tradesmans National Bank, by same, 28 cs. printing paper.
Chemical National Bank, by same, 112 rolls news print.
Chemical National Bank, by same, 84 rolls paper.
Castle & Overton, Eastern Victor, Rotterdam, 123 bls., 28 tons wood pulp.
Castle & Overton, Dania, Kristiania, 800 bls. wood pulp.
E. J. Keller Co., Inc., Ida, Trieste, 704 bls. wood pulp.
E. J. Keller Co., Inc., by same, 582 bls. rags.
E. J. Keller Co., Inc., Ermland, Hamburg, 39 bls. rags.
E. J. Keller Co., Inc., Sarcoxie, Bordeaux, 601 bls. rags.
E. J. Keller Co., Inc., Archer, Hamburg, 182 bls. rags.
E. J. Keller Co., Inc., West Eldara, Dunkirk, 194 bls. rags.
E. J. Keller Co., Inc., Bilderdyk, Rotterdam, 214 bls. rags.
Castle & Overton, Galtymore, Scotland, 490 bls. waste paper.
Castle & Overton, Syria, Marseilles, 334 bls. rags.
Katzenstein & Keene, Inc., Ermland, Hamburg, 68 bls. rags.
Katzenstein & Keene, Inc., by same, 34 bls. bagging.
Katzenstein & Keene, Inc., Ida, Barcelona, 154 bls. rags.
L. H. Abenheimer, Aden Maru, Hamburg, 85 bls. rags.
National Bank Commercial, by same, 43 bls. rags.
New York Trust Co., by same, 113 bls. rags.
Castle & Overton, Eastern Victor, Rotterdam, 123 bls. rags.
D. J. Murphy, by same, 763 bls. rags.
E. J. Keller Co., Inc., by same, 928 bls. rags.
E. J. Keller Co., Inc., Coaxet, Antwerp, 135 bls. rags.
A. Hurst & Co., by same, 45 bls. rags.
M. O'Meara Co., by same, 42 bls. rags.
H. F. Watson & Co., by same, 84 bls. rags.
Bemis Bros. Bag. Co., by same, 104 coils old rope.

BOSTON IMPORTS

WEEK ENDING MARCH 8, 1924.

Katzenstein & Keene, Inc., Virgilia, London, 155 bls. rags.
Katzenstein & Keene, Inc., Ninian, Manchester, 57 bls. new cuttings.
Katzenstein & Keene, Inc., Bloomersdyk, Rotterdam, 54 bls. rags.
Castle & Overton, Capulin, London, 229 bls. waste paper.
E. Butterworth & Co., Inc., Caledonian, Manchester, 80 bls. jute waste.
M. O'Meara Co., by same, 70 bls. bagging.
Train, Smith & Co., by same, 86 bls. rags.
Train, Smith & Co., Darian, Liverpool, 121 bls. rags.
Train, Smith & Co., Scythian, Liverpool, 43 bls. waste paper.
Train, Smith & Co, Ninian, Manchester, 22 bls. rags.
Train, Smith & Co., by same, 74 bls. new cuttings.
Train, Smith & Co., Danisian, Liverpool, 28 bls. new cuttings.
E. Butterworth & Co., Inc., by same, 245 bls. rags.
James Hunt, by same, 89 bls. rags.
James Hunt, by same, 94 bls. new cuttings.
G. W. Wheelwright Paper Co., Scythian, Liverpool, 198 bls. waste paper.
True & McClelland, Ninian, Manchester, 157 bls. cotton waste.
Leigh Textile Co., Inc., by same, 416 bls. cotton waste.
International Purchasing Co., Caledonian, Manchester, 340 coils old rope.
International Purchasing Co., Scythian, Liverpool, 248 coils old rope.
International Purchasing Co., Danisian, Liverpool, 97 coils old rope.
Ashworth Speakman & Co., Caledonian, Manchester, 849 bgs. hide cuttings.
E. F. Russ & Co., by same, 434 bgs. hide cuttings.
E. F. Russ & Co., Danisian, Manchester, 1,000 bgs. hide cuttings.
E. F. Russ & Co., Ninian, Manchester, 243 bgs. hide cuttings.
J. B. Moors & Co., by same, 49 bgs. hide cuttings.
The Borregaard Co., Alexandria, Copenhagen, 580 bls. wood pulp.
First Nat'l Bank of Boston, B. Bjornson, Buenos Aires, 1,000 bgs., 60,000 kilos Casein.

INDIRECT LABOR

(*Continued from page 60*)

ardization of activities usually cannot be carried so far as they may be in the larger plants.

The following chart is intended merely to suggest a possible means of analyzing, in a functional way, the labor actually applied in the several operating and service departments. The totals obtained in the extreme right hand column are usually not necessary for purposes of burden distribution of costing but they may serve a very useful purpose in indicating the labor cost of the several functions in a plant. It is evident, that it can readily be modified or expanded to meet the needs of any concern to which it applies at all. Also, it may be pointed out, supplies used can be analyzed in the same way if found expedient.

SUGGESTED TABULAR ANALYSIS FOR CONTROL OF FACTORY LABOR

	Service Departments									Operating Departments						
	Stores	Power	Tool Crib	Plant Maint.	Inspec.	Factory Office	.....	.....	.....	Dept. A	Dept. B	Dept. C	.....	.....	.....	Total.
Foremen and assistants	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Time and despatch clerks	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Genl. deptl. indirect labor	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
.....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Cleaners, sweepers, etc.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
.....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Internal transport	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Inspection	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Idle time	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Direct labor bonus	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
.....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
.....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
.....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Total indirect labor	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Direct labor	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Total labor	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....

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Dayton Office

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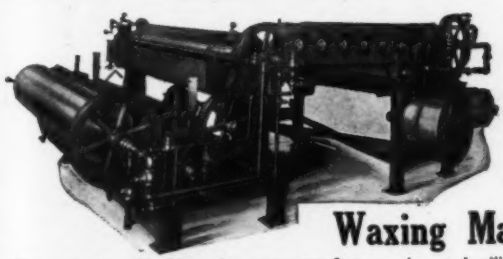

Type 40-G-72"
Dimensions
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Width 7' 6"
Height 5' 2"
Weight 7600 lbs.
Cubic ft. 594
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Miscellaneous Markets

OFFICE OF THE PAPER TRADE JOURNAL,
WEDNESDAY, MARCH 12, 1924.

The general trend of affairs in the chemical markets is continuing to improve but without any radical changes in either one direction or the other. Prices have remained just about the same with no indication that they are going to go any longer. Manufacturers say that they are looking for increases in quotations at this time rather than any decreases.

Goods are moving with fair regularity and curiously enough in those branches of the market in which the paper industry is not much interested the buying is increasing from other quarters and this is tending to keep things firm.

BLEACHING POWDER.—Bleach is still in the good demand that it was a week ago with no further changes in price following the rise of ten days back. The call for bleach is certainly considerably greater than it has been for some time and manufacturers who failed to avail themselves of the low prices of a little while ago are now at a severe disadvantage. It is quoted at from 1.65 to 1.75 cents a pound.

CAUSTIC SODA.—Caustic is not in much better demand than it was about two weeks ago although there are definite signs that the paper industry is showing considerably more interest in it than has been the general rule for the past few months. The price is quoted at from 3.10 to 3.15 cents a pound on a flat basis at the works.

CASEIN.—Although casein is not quite up to the other chemicals so far as demand is concerned it has recovered considerably from its lassitude of a few weeks back and is now fairly firm at from 13 to 15 cents a pound.

CHINA CLAY.—A good demand for china clay has shown in the local markets during the past week both in the imported and in the domestic grades. Buying is good not only in the paper industry, but in the several others principally pottery which buy this product in large quantities. The price is quoted at from $12 to $15 a ton on the domestic grades and $16 to $20 a ton on the various imported grades.

CHLORINE.—Although chlorine has not continued to improve after its upward rise of a short time ago the dealers and manufacturers report that they are doing a business that is good enough to keep them busy although they say that there is still some room for improvement. The price remains at 3.50 to 4.50 cents a pound in tanks.

ROSIN.—In some of the grades naval stores are in good demand while in others there is still a good bit of room for improvement. As far as the paper industry is concerned the buying still keeps up at about the same level. The price is at about $5.90 to $6.00 in 280 pound lots.

SALTCAKE.—While there is a good demand for saltcake in the glass industry there seems to be not so great a call for this commodity among paper manufacturers. The price remains firm at from $20 to $23 a ton which is very firm because of the large sales which are constantly being made.

SODA ASH.—There is still a good demand for soda ash and the allied chemicals in the paper industry with buyers often bidding against each other for lots in the open market. The price remains at 1.38 cents a pound on a flat basis at the works.

SULPHATE OF ALUMINA.—Alumina still is in fair demand with paper manufacturers evincing interest in buying orders for long periods. The price is 1.30 to 1.40 cents a pound on the commercial grades and 2.10 to 2.25 cents on the iron free.

Clayville Paper Mills in Bankruptcy

UTICA, N. Y., March 6, 1924.—The Clayville Paper Mills, Inc., of Clayville, filed a petition in bankruptcy today with liabilities of $303,235 and assets of $179,984.

Market Quotations

(Continued from page 65)

No. 1 Mixed	1.60	@	1.75
No. 2 Mixed	1.25	@	1.50
Solid Ledger Stock	2.25	@	2.50
Writing Paper	2.00	@	2.25
No. 1 Books, heavy	2.00	@	2.25
No. 2 Books, light	1.40	@	1.50
No. 1 New Manila	2.75	@	3.00
No. 1 Old Manila	1.75	@	2.00
Container Manila	1.25	@	1.50
Old Kraft	2.25	@	2.50
Overissue News	1.25	@	1.35
Old Newspaper	.90	@	1.00
No. 1 Mixed Paper	1.00	@	1.10
Common Paper	.80	@	.90
Straw Board, Chip	1.00	@	1.10
Binders Bd., Chip	1.00	@	1.10
Domestic Rags—New.			
Price to Mill, f. o. b. Phila.			
Shirt Cuttings—			
New White, No. 1	.12	@	.12¼
New White, No. 2	.07	@	—
Silesias, No. 1	.07¼	@	.07½
New Unbleached	.10	@	.11
Washables	.04½	@	—
Fancy	.05¼	@	.05½
Cottons—according to grade—			
Blue Overall	.05½	@	.05¾
New Blue	.03¼	@	.03¾
New Black Soft	.05¾	@	.06¼
New Light Seconds	.03¼	@	.03¾
Khaki Cuttings	.11	@	.04½
Corduroy	.03½	@	.04
New Canvas	.03¼	@	.03¾
New Black Mixed	.04	@	—
Old White, No. 1—			
Repacked	.06	@	.06¼
Miscellaneous	.04½	@	.04¾
White, No. 2—			
Repacked	.03½	@	.04
Miscellaneous	.03	@	.03¼
Thirds and Blues—			
Repacked	2.50	@	2.75
Miscellaneous	2.15	@	2.35
Black Stockings	2.75	@	3.00
Roofing Stock—			
No. 1	1.35	@	1.40
No. 2	1.25	@	1.30
No. 3	.75	@	.90
No. 4	1.15	@	1.20
No. 5A	1.10	@	—
B			nominal
C			nominal

BOSTON

Paper

Bonds	.09	@	.63
Ledgers	.09	@	.55
Writings	.08½	@	.42
Superfine	.16	@	.26
Fine	.15	@	.18
Books, S. & S. C.	.07¼	@	.12
Books, M. F.	.07¼	@	.09½
Books, coated	.09	@	.15
Label	.09	@	.13
News, sheets	4.75	@	6.00
News, rolls	4.00	@	4.50
Manilas—			
No. 1 Manila	6.00	@	7.00
No. 1 Fiber	.06½	@	.07
No. 1 Jute	9.00	@	10.50
Kraft Wrapping	.07	@	—
Common Bogus	3.50	@	3.85

Boards

(Per Ton Destination)

Chip	42.50	@45.00
News, Vat Lined	45.00	@ —
Wood, Vat Lined	52.50	@55.00
Filled News Board	45.00	@50.00
Solid News Board.		
No. 4 Finish	60.00	@65.00
S. Manila Chip	60.00	@67.50
Pat. Coated News	80.00	@90.00

Old Papers

Mixed papers	.62	@	.67½
Folded news	.80	@	.82½
Soft white shavings	3.00	@	3.15
Hard white shavings	3.75	@	4.00
Kraft paper	2.05	@	2.15
Ledger and letter	2.15	@	2.35
No. 1 books and magazines	1.60	@	1.70
Manila paper No. 1	1.75	@	1.80
Solid ledgers	2.50	@	2.75
No. 1 roofing rags	2.10	@	2.20
No. 2 roofing rags	2.00	@	2.05
No. 3 gunny bagging	1.40	@	1.50
No. 4 Brussels and hard back carpets	1.40	@	1.50
No. 5 roofing rags—			
A's	1.75	@	1.85
B's		@	
C's		@	
No. 6 City dump rags		@	
Manila rope, domestic	.06	@	.06½
Mixed strings	1.15	@	1.25
Jute strings	1.30	@	1.40

TORONTO

Paper

(Mill Prices to Jobbers f. o. b. Mill)

Bond—			
Sulphite	.11	@	.12½
Light tinted	.12	@	.13½
Dark Tinted	.13½	@	.15
Ledgers (sulphite)	—	@	.13
Writing	.09½	@	.12
News, f. o. b. Mills—			
Rolls (carloads)	3.75	@	—
Sheets (carloads)	—	@	4.50
Sheets (2 tons or over)	—	@	4.75
Book—			
No. 1 M. F. (carloads)	9.00	@	—
No. 2 M. F. (carloads)	8.00	@	—
No. 3 M. F. (carloads)	7.50	@	—
No. 1 S. C. (carloads)	9.50	@	—
No. 2 S. C. (carloads)	8.50	@	—
No. 1 Coated and litho	14.50	@	—
No. 2 Coated and litho	13.50	@	—
No. 3 Coated and litho	12.75	@	—
Wrapping—			
Rag Brown	4.75	@	—
White Rap	5.25	@	—
"B" Manila	5.50	@	—
No. 1 Manila	6.50	@	—
Fiber	6.50	@	—
Kraft, M. F.	7.00	@	—
M. G.	7.15	@	—

Pulp

(F. o. b. Mill)

Ground wood	$34.00	@36.00
Sulphite easy bleaching	55.00	@65.00
Sulphite news grade	50.00	@55.00
Sulphite, bleached	75.00	@80.00
Sulphite	55.00	@62.00

Old Waste Papers

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	3.65	@	3.80
Soft White Book shavings	3.20	@	3.30
White Blk. News	2.15	@	2.20
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.60	@	—
Light and Crumpled Book Stock	1.45	@	—
Ledgers and Writings	2.00	@	—
Solid Ledgers	2.00	@	—
Manilas—			
New Manila Cut	—	@	2.00
Printed Manilas	1.55	@	—
Kraft	2.05	@	—
News and Scrap—			
Strictly Overissue	.90	@	—
Folded News	.90	@	—
No. 1 Mixed Papers	—	@	.75
Domestic Rags—			
Price to mills, f. o. b. Toronto			Per lb.
No. 1 White shirt cuttings	.12¼	@	.13
No. 2 White shirt cuttings	.06½	@	.07
Fancy shirt cuttings	.06¼	@	.06½
No. 1 Old Whites		@	
Third and blues	.03¼	@	.03½
			Per cwt.
Black stockings	.03	@	—
Roofing stock:			
No. 1	—	@	—
No. 2	—	@	—
Manila rope	.06¼	@	.06½
No. 2	1.55	@	—
Gunny Bagging	.01¼	@	—